AMERICA'S LARGEST TEXTILE MONTHLY

# COTTON

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Dalton and Atlanta, Ga.

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## COMMISSION DYERS OF YARN IN THE WOUND FORM

# COTTON

Published Monthly by

**W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga.**

**L. L. ARNOLD, Editor.** **R. W. PHILIP, Associate Editor.**

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When changing address, notify us, not the postmaster. Always give the old address as well as the new one.

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# MATHIESON Chemicals

## A Remedy For One Dye House Trouble

ONE of the many possible sources of trouble in the dye house is the use of improper alkalies—special alkali mixtures which are seldom uniform in strength and often of unknown or uncertain composition.

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In many cases where the so-called modified sodas are being used, the change to straight 58% Soda Ash also brings with it an immediate and substantial saving in alkali costs. For example, in preparing sulphur colors one pound of Soda Ash will do the same work as two pounds of modified soda. The desired results are obtained with half as much straight 58% Soda Ash and at less than half the previous cost.

*Our technical staff will be glad to demonstrate these facts at any time to interested textile men.*

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*Bicarbonate of Soda*
*Anhydrous Ammonia*

*Soda Ash - Bleaching Powder*
*Modified Virginia Soda*
*Aqua Ammonia*

**Deal Direct with the Manufacturer**

# With the Publishers—

## Learning from the Bloodhound Man

A man who owned a pair of bloodhounds went into the editorial office of a middle-western newspaper. Here he sought out the young man whose duty it was to read the "exchanges" or country weeklies and said to him:

"I'd like to fix it some way for you to cut out for me all pieces about any stores being broken into, horses stolen, chicken houses robbed, or any kind of meanness like that. I mean any sort of dirty work that would give me a chance to use my dogs."

He went on to explain that he intended to mail a circular telling about the work of his dogs to everybody that had been the victim of any depredation.

"But it will be too late," protested the young newspaperman. "By the time I cut out a clipping and mailed it to you and you sent a circular, there'd be no chance of your dogs ever picking up the trail."

The old bloodhound man smiled knowingly.

"It's the next time that I'm after. If I send a circular to a man who has been robbed he's going to remember it the next time anything goes wrong in that community. If it doesn't happen to him, he'll tell the other victim about it—likely he'll carry the circular around for a while—and the chances are, in a good many cases, they'll phone or telegraph for me."

They did send for the bloodhound man and his dogs "next time," as the young newspaperman found after the plan had been in operation for a while

As in the case of the small-town victims of "dirty work" who were sought by the bloodhound man, there is often a "next time" for the mill men who read COTTON. Not every article that we publish telling how some other mill superintendent has trailed down the answer to a difficult operating problem fills an immediate need for every reader, in spite of the fact that we try to select material that will be of assistance to the greatest number.

But later on something comes up in the mill—something that is robbing the profits and keeping the superintendent awake nights trying to find out what it is and how to trap it. Then he may recall that he had seen something referring to that particular form of depredation in a copy of COTTON. He can then refer to his filed copies and learn just how some other mill man trailed the profit-thief to its lair and ended the losses.

Every issue of COTTON should be preserved for use "the next time," keeping a personal index that will suit the needs of the individual and his work.

Nor are the editorial articles the only forces that are tracking down the culprits of industry. Sometimes the criminal may be a piece of inadequate machinery or other equipment in the mill; or a suitable chemical compound may be needed. The makers of the things described in the advertising pages of COTTON have unearthed the reasons for losses in a great many mills. They use these pages to offer to textile men their assistance in detecting the plunderers of time, money and material.

On practically every page of COTTON—text or advertising—there's a clue to the solution of some textile mystery—to be used now or the "next time."

# AMONG COTTON'S READERS

**Marion T. Grimes**

**Superintendent, Gluck Mills,**

**Anderson, S. C.**

"Being very much interested in each issue of COTTON, I always look for my copy each month, and when it is even a day late, I am very much disappointed."

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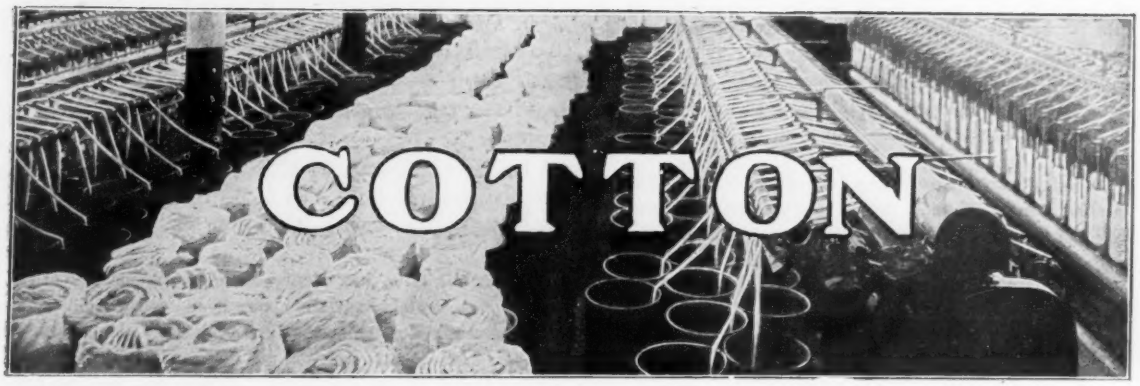


## April, Nineteen-Twenty-Five.

### Double and Confiscatory Taxes.

President Coolidge's recommendation that Congress repeal present laws levying Federal taxes on estates or inheritances deserves the sympathetic attention of all persons interested in taxation: and who isn't?

Off hand one would think that inheritance taxes are the fairest of all taxation. They fall on those who are patently able to pay, they can not be passed on to the shoulders of others as in the case of most other taxes, and, being beyond evasion, the burden is imposed equally on those who bear it. These considerations may make of that form a meritorius one for the States to employ, but it is one which the Federal Government should use only during periods of emergency as in times of war, if at all.

While much can be said for the inheritance tax in principle, all the argument is not favorable thereto; one may doubt, for that matter, if all the argument supports any form of taxation. There is one quite formidable argument to be advanced against inheritance taxes. This relates to the element of confiscation which it involves. For the inheritance tax is in essence the seizure of property rather than income, real or prospective, from property. The validity of this argument can be visualized in the full by considering what would happen if government carried to the fullest extreme the practice of taking the source of earnings rather than confining its takings to earnings. The result would be the killing of the goose that lays the golden eggs of revenue. Ultimately there would be no property to tax; the Government would own, or have dissipated, everything.

On taxes that are predicated on the earnings of property, economic law sets up an invincible check against destructive extremes. It exists in the principle of diminishing returns. For taxes to yield revenues the sources must be allowed to prosper beyond the demand for taxes; otherwise, the revenue, which is the first if not the only proper basic aim of all taxation, would be cut off by the very measures employed for securing it.

Hence the taking of capital assets for taxes is always a dangerous procedure; for when revenues are procured so easily the impulse of legislators is to carry the process to extremes.

This already is evident in the matter of inheritance taxes, which, though levied at various times since the nation was founded, have only in recent years been treated as an established source of public revenue.

All but two of the States now include such taxes in their settled policies. The inheritance tax rates of several States are dangerously high. The laws of several States are so framed that an estate often has to meet these taxes in several jurisdictions. A specialist in the subject says that it is possible for inheritance taxes to be imposed on many big estates by at least five State Governments, and for these to amount, sometimes, to more than the value of the property taxed. Or, rather, seized; for it is essentially confiscation, though there is much to be said for application, in moderation, of this much abhorred principle to big estates. When carried to extremes, the levying of inheritance taxes often makes necessary a hasty liquidation of assets, at heavy loss to all concerned, as well as exhorbitant administrative expenses.

Whatever commends this process of taxation argues for it as a State rather than as a Federal Government instrument. The only argument for Federal taxation of this kind is the tendency of owners of big fortunes to concentrate in a few localities while their holdings often are distributed widely over the country. This argument is offset by the fact that the States have the right to, and often do, levy these taxes with reference to the location of the property rather than the residence of the owner. The argument for Federal inheritance taxes of any kind would be sounder if put forth in behalf of exclusively Federal taxation in that field.

But the Federal Government does not need to draw on that source of revenue in normal times, and the source would be more valuable to it if held in reserve for emergencies. In normal times, it used to be regarded as a fixed rule that the State and the Federal Government would keep out of each other's way in levying taxes; that is, that each would confine itself to sources not touched by the other.

In their over-eagerness for big revenue, they have let this good rule go by the board. Most of the State governments, as well as Federal, now tax incomes and inheritances, and in these forms of taxation the State governments often overlap each other.

It should not be forgotten that it was largely for the prevention of such practices that the Union was established.

The Federal Government should observe the old rule

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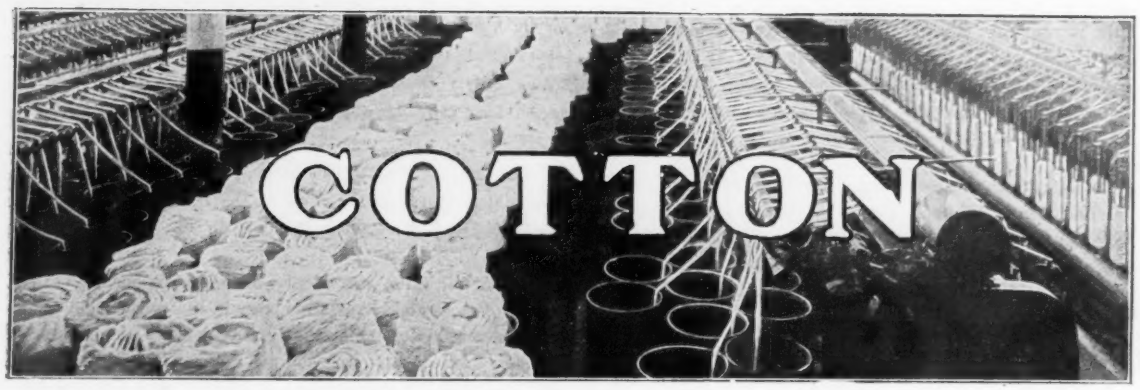


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in so far as it can. While it was the first to enter it, the inheritance tax field was first taken over permanently by the States and it should be reserved for their exclusive exploitation. If some of them, like Florida, want to offer the bait of constitutional inhibition of such taxation, it is within their right to do so, and even that practice is no exense for the Federal Government occupying the field.

Estates taxes yield less than $100,000,000 to the Federal establishment. While to note how Uncle Sam has mulcted millions from the property of some multi-millionaire makes the ordinary citizen feel good, the practice is a dangerous one and may lead to evils that far offset the advantages.

## Long Range Weather Forecasts.

While it probably is over-conservative in its attitude and no doubt unduly antagonistic toward outsiders who venture into its field, the United States Weather Bureau seems to have good ground for holding to its contention that no dependable basis has yet been found for forecasting weather conditions far ahead.

For about a score of years, the Smithsonian Institution has been collecting data which it, or, rather, its assistant secretary, Dr. Abbot, hopes will supply a basis for reasonably accurate weather forecasts months if not years in advance. These data consist chiefly of records, made in widely separated quarters, of the sun's radiation of heat, which varies and probably has much to do with the weather on this earth. But neither the Smithsonian as a body, nor Dr. Abbot, who has supervised the collecting of data bearing thereon, has attempted to make long distance weather forecasts. These data have been used by outsiders, who though no doubt able and sincere, are not outstanding meteorologists. While some of the forecasts put forth were proved by what happened during the past winter, the general character of their prophecies were not sustained by resulting facts.

The discussion aroused by these forecasts probably will hasten the time when long distance predictions of undoubted merit can be made; for it is hardly possible that the weather is not governed by laws which can be divined to the extent that their effect may be foretold far ahead. Meteorology is a comparatively new science and the undisputed progress made therein has been rapid and immense. But it might be better to trust to the recognized leaders in that science than to outsiders, no matter how plausible the latter's claims; at least it is better until the claims of the latter are proved beyond all question.

The weather is such an eccentric phenomenon and subject to so many variations that the casual observer may misinterpret, that it is not difficult for one of unscientific mind to put faith in almost any basis for predicting its manifestations. The long range weather prophesies of virtually anybody will be borne out in some measure; for outright guesses should be sustained, in the long run, to an extent of around fifty per cent.

It is well that the wish for such valuable information be not permitted to overrun sound judgment. If one wants to gamble on unofficial forecasts, just as many apparently sane persons gamble on prophecies made by professional fortune-tellers, no objection can be made. The scientific world often is reluctant to accept a discovery made by a novice but not many alleged ones that science's votaries refused to accept proved in the end to be valid. For every exception, there are hundreds of cases as to which the scientists were right.

## One-Man Power in the Senate.

One can admire Vice President Charles G. Dawes for his bold criticism of the rules of the United States Senate without agreeing wholeheartedly with his particular contention.

No doubt there are plenty of solid reasons for criticizing "the greatest legislative body in the world" and there is some reason for the specific criticism with which its new presiding officer gave a severe jolt to that body. But there are two sides to the question of cloture, and the less one studies the subject the more one is apt to agree with the Dawes contention, while the more one studies it, the more likely one is to disagree with it.

The question is whether debate in the Senate should be unlimited, which is now permitted by its rules. Modified limitation on talk in the Senate is provided for by an amendment to the rules adopted several years ago. It is so moderate, however, that it is rarely applied and is virtually non-applicable to cases of most questionable abuse of the speaking privilege. These are the ones where a single Senator, usually during the closing days or hours of a session, uses his right to speak indefinitely as a club for black-mailing Congress in behalf of some pet demand, usually a local appropriation. He simply gets the floor, as the late Senator Tillman, of South Carolina, did on one occasion, and announces brazenly that if the Senate doesn't come across he will talk until the session ends and thus prevent the passage of those last-minute measures on which the operation of the Government depends. Sometimes he succeeds but not always. At the session prior to the last one, a western Senator thus prevented action on a deficiency appropriation bill solely because it did not contain an appropriation for a pet reclamation project on his own State. The bill, without that item, was passed at the succeeding session. The delay did not do any particular harm and he gained nothing but a lot of recrimination for his maneuver.

The undoubted evils adhering to unlimited debate in the United States Senate are surmounted in the long run by undoubted values. The first invariably are only incidental, the last frequently are fundamental.

The one Constitutional right which can not be taken from it without its consent is a State's representation in the United States Senate. This is probably the greatest protection that single States and small groups of States have against possible oppression by all the other States acting in concert against it or them. So long as it is possible for one Senator or a small minority group to stand up and say "It shall not pass" there exists a counter to tyranny of the worst sort, which is that imposed by mere virtue of numbers. The South, with its peculiar problems that often excite a rampant but misguided interest in other sections, often has been saved from oppressive and foolish measures by that strategem. One needs to call attention only to the Lodge "Force Bill" of thirty years ago to show how vital to a State or section the right of unlimited debate in the United States Senate may be.

The late Senator Hoar, of Massachusetts, remarked in his later years that while the no-cloture rule, seemingly, often had been made use of to kill legislation which the country demanded, it was noteworthy that time showed it never had prevented anything being ultimately done that the country truly wanted.

The presumption is against at least ninety per cent of the legislation proposed in Congress, and even indefinite delay in the passage of that which is desirable rarely does great injury to anyone. Hence, the greater the difficulties that may be thrown in the way of the passing of bills the better it is, in the long run, for the country. And if the country truly wants a law, and needs it, the statute will be produced in the end regardless of Senate rules.

# The Hand-to-Mouth Policy

BY W. M. McLAURINE.

Most mills are combatng a new problem in their industrial life—a hand-to-mouth policy. It is new only from a comparative point of view. The hand-to-mouth buying policy has queered tradition and puzzled the manufacturers who for a long period have not had to cope with it.

Many of our economists and practical business men say that it has come to stay, and offer some very good reasons for their opinions. Some that may be briefly listed are:

1. That it keeps stock modern and salable all of the time, thereby making a quick turnover.
2. Prevents overstocking.
3. Prevents having capital tied up in stored stock, thereby reducing overhead in many ways.
4. Style changes and demands make small fast orders a necessity.
5. Wholesalers and retailers find it advantageous to keep in close touch with the market.
6. Such contact is educative and enables them to keep pace with the trend.
7. Transportation is so rapid that they can get efficient service.
8. There is always a surplus of goods available and supplies can be secured without delay.

There was a time in our economic history when production was not equal to consumption. The demand was equal to or greater than the supply. This furnished a stimulus to production and the marketing problem was largely a matter of simple distribution.

Recent years, with the great evolution of machinery and methods, with high specialization and enlarged production centers have reversed the inequality.

Production is, in many cases, outdistancing consumption and marketing, and the result is a weak, easily depressed and uncertain market. Many theories have been advanced, such as abnormal times, unsettled financial conditions, international relationships, readjustments, and dozens of other things. Doubtless all of these have played some part, but not nearly so great a part as the great and incontrovertible law of supply and demand.

Artificial devices have been used, various and sundry strategies have been tried, but artifice and strategy must eventually give place to reality and fact.

World demands change slowly, surely and steadily. The great industries of the world must change to meet these demands. The law of supply and demand must be met.

There are two types of people that are unsafe to follow. One is that type that is always looking into the future or distance so far that he is lost as to present day affairs and needs of life.

The other type is always looking down at the feet of the immediate present so intently that it gropes blindly on.

The real leader looks out into the distance and gets his direction, interprets on-coming movements, makes his plans to meet them, then comes back to the immediate present and directs his affairs to this end.

The cotton manufacturers of the United States, for the most part, give evidence of looking to the immediate future, and have absolutely disregarded fundamental and economic philosophy.

They head large organizations and must run their plants regularly and sell their products at a profit to be successful. This means, they must have orders. They must dispose of their products at a fair profit or they can not hope to survive.

For fifteen months there has been gloom in the land; many mills have not had sufficient orders to run regularly, but they have run on and stored and stocked their warehouses. They held until their storage got heavy from depreciation in value, interest and other factors. They become restless, desperate. The law of supply and demand shook his bony finger at their faces and sternly said, "You have broken my edict; you must pay the penalty. Sell your goods, dump them and break the market; sell them at a loss and hurt yourself and everyone else in the industry."

Then the kind judge, Cooperation, in pleading voice claimed their attention, "Whatever hurts you, hurts everyone else, no one man can direct his own activities and desires regardless of the society of which he is a part."

Overproduction is hazardous. Sometimes a law may be violated and the evil consequences may not seem evident, but there is another infallible law, "Those that violate the spiritual or natural law must pay; they may pay now, or pay later, but they must pay."

The economic law of supply and demand is so fundamental that it should be classed as a law of nature or natural law. Hence, its violation is attendant with the baleful consequence. This sounds like a professional lecture of some pedantic teacher to a group of students, and so it is. The class is a group of men in the University of Hard Knocks and like the true Modernist, some of its members feel that with new conditions new laws are operative and old laws are passing with the old order. Temporary laws pass, but fundamental laws are abiding.

But the mill men say they can't get orders sufficiently fast and sufficiently large to keep their mills running steadily, and they must keep their mills running steadily in order to handle their overhead.

For example, a mill with a thousand looms and all running can turn out production which will allow that part,

which the market demands, to be sold at a profit. Suppose the mill is able to dispose of half of its production; that means the other half will be stored. That means breaking the law, that is, if it is adopted as a general policy for a long period of time.

Let one thousand mills do this same thing, and like sinking in quicksand they go deeper and deeper. They show a margin of profit on goods sold and on goods in storage, but the day of reckoning comes. Stored goods begin to get heavy, the market knows this, the market weakens, down to cost, down below cost, down to where loss of stored goods is greater than gain on goods sold to order. Balance the books.

Men will tell you business was good for six months, but the last six months it was bad. Cotton mill business has been bad for fifteen months. Why? Are the cotton manufacturers helping it get better? They seem to think somehow they can violate the economic law and get away with it. Let them get up on a tall building and roll off and see if it will harm them. Let them place their hand on a red hot piece of metal and see if it will burn them. If they are successful in these two experiments and escape without injury then they can adopt any policy they desire and get away with it.

There is another angle from which this subject should be viewed. If the production of present spindles and looms cannot be cared for, is it the part of wisdom to be continually expanding in the same lines? Are Chambers of Commerce and industrial agencies really contributing to the general good in always trying to get new mills established and heralding the wonderful opportunities that only theoretically exist?

Perhaps a pause for explanation is needed here. This discussion is intended to treat the subject of expansion in regard to the United States and not to a particular section. If it is the part of wisdom for a mill to change locations, that is, from one section to another, or even from one state to another, the statements made do not apply. One of the chief points that the writer desires to drive home is the continuous increase of spindles and looms in the nation. Textile production is no longer a local problem. It is a problem that touches every textile mill. Sense must be employed in any further expansion. It may be that expansion in certain lines are possible, but what are the lines, and how can one know?

It seems, at the present time, that cotton manufacturers have just about reached the same condition that the southern cotton farmer has. Curtailment of growth of spindles and looms is necessary. The yarn mills are perhaps a better example than the weaving mills.

There is a production which yields profit and meets the just, economic social need. Beyond that production, disaster impends. This means that economic demand justifies spindles and looms up to a certain number. Beyond that number is danger. What is that number? Is it infinity? Is it limitless? The only answer that can be given now is that it is "X."

The world is imbued with a peculiar psychology. Perhaps it is because the rank and file of the people are gaudy winged butterflies always looking for something beautiful and dazzling and soon to be caught and consumed in the flame of their senseless desires.

Study filling stations, grocery stores, drug stores, and thousands of vocations in life and see how blindly so many people rush to their own disaster, or the disaster of someone else, because they never stopped to consider the fundamental law. What the safe number of spindles is for the United States no one has ever attempted to say. It may be 40,000,000. If so, then 45,000,000 would be too many and the 5,000,000 extra would not only imperil themselves but harm every spindle in place. These suggestions may appeal to some as wild-eyed theory and to them they may be, but to those who read and understand they are not.

But back to the main line. A condition is facing the cotton manufacturers today. How shall they handle it? Only two suggestions occur to the writer. Production must be brought to the proper ratio to demand.

That means that production must be decreased for the present at least. Who is going to do it, and how will it be done? There is no one to do it except the manufacturers. The buyers do not control production. The manufacturers control it. Then they must do it. How will it be done? There are two ways to do it, and only two.

The first way is by intelligent cooperation and planning. This can only be done by carefully studying world demands, stocks on hand, possible contingencies, retrospections and an intelligent interpretation of the trend. Not the trend of your particular mill, but kinds, qualities, quantities and the economic relationships with which the textile industry is related. The second way is blindly groping into destruction and annihilation of many good mills—the survival of the fittest.

Sometime ago the Federal Reserve Banks were both censured and praised by different classes of people because of their deflation policy. It is true many people lost heavily because of that policy, yet the financial world has moved on sufficiently far to interpret their policy as safe, sane and economic. Even those who lost heavily would have lost more heavily if the impending disaster had not been averted by rather drastic means.

Deflation of production in textiles must come, and if no other means except calamity can impress this upon the manufacturers then they will be taught in this method. It is much better to lose a little than lose a lot.

Small organizations, weak organizations, even large organizations are "selling their birthright for a mess of pottage." They are feeding the lion so that it will grow strong enough to devour them.

But curtailment, or working to orders which often means curtailment, will make overhead so great that profit will vanish. Which is the more economic in business? That steady flow of activities which brings in a sure margin of profit, or that sporadic, highly speculative business in which fortunes are made or lost according to forced conditions?

A properly balanced business should always be able to establish the correct ratio between overhead and production. To be sure this is a theory, but it is an economic theory based upon a fundamental law. Most overhead expenses are pitched for maximum production and good conditions.

According to some of the recognized statisticians there is a depression for every inflation and vice versa. But under intelligent leadership the depression is not quite so great as the inflation. Therefore the forward movement is always

a little above the horizontal, considering it from a graphical point of view.

Why should overhead be loaded for a condition which exists only for half of the time during the life of the industry?

If overhead were weighted for periods of stress rather than for periods of success, this defiant giant called "overhead" might not block retrenchment.

Some months ago the manufacturers of Georgia had a living example of overhead expenses and its attendant disaster.

The insurance carriers appealed to the Insurance Commissioner for an increase in rates on Compensation Insurance. The facts submitted indicated that from every dollar paid to the carriers by the manufacturers, 44.5 cents were taken out for overhead.

Manufacturers were of the opinion that overhead was too great, but the carriers apparently justified their position as their request was granted.

Many were of the opinion, however, that if their request had not been granted, they would have reduced their overhead.

The cotton manufacturers can not appeal to a commission, nor can they continue their policy of overproduction, so their overhead must be reduced, or like good sports, something must be written on the "lost" side of the "profit and loss sheet."

Cotton mill men must be students. They must study the big relationships. The textile industry, which is the second most important industry in many respects in the United States, is too big for little men. It is too involved for ignorant men to handle. It is too big for any one man to handle. Its problems are too big for one man to solve.

Intelligent cooperation between states and sections must be active. The problems of one are the problems of all.

This has not been written in any spirit of pessimism, or fault-finding. When the Children of Israel were in exile and in bondage in Babylon, the old prophets preached a stern doctrine. Yet this doctrine was one of deliverance.

The cotton manufacturers have been in exile for fifteen months.

"Harken, ye, unto my words and ye shall return."

# Spinning Discussion Held at Charlotte

Another practical discussion on spinning was held at the meeting conducted by the Southern Textile Association on Friday, the 13th of March, at the Chamber of Commerce Hall, in Charlotte, N. C., under the auspices of the Spinning Division, of which Carl R. Harris, assistant superintendent, Inman (S. C.) Mills, is the chairman.

A good crowd, which manifested an interest in the discussion, was present. Mr. Harris conducted the discussion in his usual able manner. Marshall Dilling, president of the Association, opened the meeting by calling upon Robert W. Philip, associate editor of Cotton, for the invocation. After the prayer, the meeting was turned over to Chairman Harris.

The discussion at the morning session was devoted to the subject of spinning room humidity and the possibilities of increasing it, without ill effects, to secure an improved breaking strength, and in considering different shapes of bobbins for use on filling wind for warp yarn.

"While sitting here looking over this body of men," said Mr. Harris in opening the discussion, "the thought came to my mind as to how many mills were represented, and I thought: if each one of us endeavored to visit each of the mills here represented, it would take a good bit of our time; in fact it would take so much time away from our jobs that we probably wouldn't have any jobs. And then I thought how much good we might get out of a meeting like this if each man would approach the discussion with an open and inquiring mind, ready to ask questions and give his opinion on the other fellow's problem.

"I happened to know of a mill in the lower part of the state that was beating our plant so much that I wanted to go to see it, and I drove about 150 miles to look through that mill. But I am frank to say that I did not find out anything that the superintendent could not have told me in ordinary conversation, and I came away from that mill puzzled.

"Gentlemen, we can thrash out things at these meetings and get practically the same benefit we would by visiting the mills. And right here I want to drop a little idea that was handed to me the other day. I know of two superintendents operating mills that are closely related who make it a practice occasionally to visit each other. As you know, it is the custom when visiting a mill to slap the superintendent on the back and tell him how nice it is running. But these men have made it a custom, in visiting one another, to try to find everything possible that they can that is wrong. They try to give the other fellow a jacking up, just the same as if it was his boss. These two men, I know, have realized a wonderful good out of that idea."

Taking up the questions for discussion, Mr. Harris said that, "the first question in the questionnaire sent out related to humidity. It is a proven fact, proven by test, that for every one per cent of regain in cotton yarn, up to nine per cent regain, there will be seven per cent increase in breaking strength. Now I know I am not getting nine per cent anywhere in the mill. We bought some English skins some time ago, and we bought them because they told us they would not lap up under heavy moisture conditions. And, as a matter of fact, they will not—if you get the right kind of skins. But when you run a heavier humidity you have trouble in rings and travelers rusting, and a general effect that is not good. So I have been studying on this question, trying to find some way to get around this condition, and that is the reason I started off with the question: Why is it that the English spinner can run with considerably higher relative humidity without experiencing the resultant ill effects of lapping up, rusting rings, etc.?" Mr. Harris then opened the meeting for discussion.

"I am not prepared to say very much about humidity," responded H. Gilmer Winget, of Gastonia, N. C., "for the only times when we have enough is when it rains. We haven't sufficient humidifiers in either of our mills. But I have used and am using some of those rolls you spoke about, and they are working very nicely for me. I have never been to England, but I have had Englishmen to visit me, and now I am trying out that roll."

Called upon for information, O. G. Culpepper, representative of the Parks-Cramer Company, said that, "so far

as humidity in the spinning room is concerned, I think you will find that the average spinner tries to maintain about 60 per cent relative humidity. Under those conditions—while I am not prepared to say authoritatively—I find very little trouble with lapping up."

"What percentage do you recommend for spinning, Mr. Culpepper?" asked the chairman.

"That depends on the numbers."

"Well, say on 30s and 40s out of inch cotton," suggested Mr. Harris.

"For that we recommend a humidity of 62 per cent," replied Mr. Culpepper.

"And what regain will that give you?" was the next question.

"Approximately 7½ per cent," answered Mr. Culpepper.

"Would you recommend a higher relative humidity if conditions were such that the machinery would take care of it—would you get a stronger yarn?" asked the chairman.

"Oh, absolutely," responded Mr. Culpepper. "But I think the general rule to follow would be to check the amount of humidity by the exposure or time limit. In the spinning room, if you carry say 60 or 65, and if you have a doffing period of five or six hours on fine yarn, your staple will absorb more moisture than if you were making coarse yarns and had a shorter doffing period."

"Yes," agreed Mr. Harris, "but do your people not state plainly that your absorption at the spindle is a great deal less than it is in the room generally?"

"Absolutely," said Mr. Culpepper, "but there is a ratio that is constant. Your yarn will not absorb to the full extent of the regain of the atmospheric condition of the room, but there is a ratio which is constant, and there is not a great deal of difference in it."

"Well, under atmospheric conditions that gives us a room regain of 7½ per cent, what would it be in the yarn, as a matter of fact?" queried Mr. Harris.

"Approximately 6½ per cent," was the reply.

"Then we are not getting the breaking strength we might get if we were running the humidity higher," said Chairman Harris.

"No," admitted Mr. Culpepper, "but there is of course a limit in all things. The staple has a great deal to do with it, and the condition of the cotton, whether new or old, etc."

Smith Williams, of the Bahnson Company, Winston-Salem, N. C., was next called upon for an expression, with particular reference to the statement that the English mills carry a higher relative humidity.

"I have never been to Europe," responded Mr. Williams, and I have no knowledge of the operation of the English mills; whether they run for production or quality. But I have talked with gentlemen who have been to England and who know a great deal about English mills, and they claim that they are not as 'hoggish' as we are; that they run, not entirely for production, but for quality. Peter Quinn tells me that the English mills open their cotton three or four weeks prior to carding it. This, with the natural high relative humidity of the English coast, has a great deal to do with the lack of lapping up on the rolls, in my judgment. I believe one of the things our mills ought to do is to humidify the opening rooms and keep the cotton open as long as possible.

"I think most of the engineers—Lockwood, Greene & Co., J. E. Sirrine & Co., Robert & Company—agree with the statement of Mr. Culpepper and recommend and specify 60 to 65 degrees relative humidity in the spinning room. A great many of the eastern mills will let the boss weaver and the spinner run the humidifying wherever they want to run it to suit their work, and then in the finishing departments they take charge of it and put the regain there themselves.

"You were speaking a moment ago about the breaking strength of yarn. I believe that 150 degrees Fahrenheit in England, and 150 degrees Fahrenheit here, would throw off the same amount of heat. I believe that humidity of the same number of cubic inches of moisture will do the same thing anywhere, and if travelers and rings do not rust in England, under the same humidity conditions, there must be some difference in the materials. It stands to reason that the same number of grains of moisture per cubic foot would do the same thing wherever it was."

"That is what I have always felt," said Mr. Harris. "That there is a peculiar condition that they could run a higher humidity than we can, unless there is something."

"Those people over there have been trained under that heavy English fog," said Mr. Williams, "and it might be like the story of the fellow who was in his cups, and slipped in trying to walk down some steps. His friends laughed at him and asked if he was hurt, but he said no, that was the way he came down all the time. They may just be able to handle it better than we do. If I were going to humidify an English mill, the system would be much lighter, and it is much lighter here than it is in Texas and Oklahoma. But as to whether the English run a higher relative humidity, I don't know."

"Do we actually know that they maintain a higher humidity in English mills than they do here?" asked Mr. Culpepper.

"They allow a greater regain," said Mr. Harris. "They set a higher standard of regain than we do."

"I understand the English adopted 8½ per cent as a basis for adjustment. Is it not customary to use 8 per cent?" asked Mr. Culpepper. "I was interested in that question because, although the English climate is more favorable to spinning, the generation of heat must be the same per number of spindles, and the heat has to be taken care of in order to produce a certain amount of regain. I would just like to know if the English mills do carry a higher humidity than we do."

Here Mr. Dilling related an incident regarding the effects of humidity. "We are making a yarn for a certain customer, and last summer it was very satisfactory to him. This yarn was shipped and stored in his warehouse which was next to his office, which was heated with steam heat, and during the summer months the yarn was satisfactory in every way. Along in cold weather, in December, they complained about the breaking strength. Our records showed that it was just as good. We carried on a correspondence in regard to it, we tested samples at our plant and they would break a certain thing, and finally they came to our plant and brought some samples out of some of the bales. We went into the mill and tested out some yarn, taking some bobbins off the frame and reeling them in the customer's presence, and they said they couldn't understand

why it would break with us and not with them. After we were through with breaking the yarn, he pulled a sample out of his pocket and said, 'Break this.' The yarn we had been testing was breaking at 290, and he said, 'This will break at 225.' We put his sample on the automatic machine, and stepped back, and it went around to 291.' He said, 'What did you do to it?' and I said, 'Nothing. You saw me reel off the right number of yards, and break it under the same conditions. A while ago you saw us put this test weight on there and try the machine for accuracy.' 'Oh,' he said, 'now I see what it is. You have so much moisture in it.' I showed him where we tested it and found it had 7½ to 8 per cent moisture, and we went back to the office, and we found that the yarn was being shipped to them and put in this warehouse that was heated by steam and that it set there and dried out, and it sized lighter, about four per cent or two numbers, and broke about 25 per cent lighter, and the whole thing was in the amount of humidity that was in the yarn. In our plant it has 7½ and 8 per cent, and in his storage room it was reduced down to 1½ and 2.'"

"I believe it was Solomon who said that a fool is known by the multitude of his words," observed Mr. Winget, "and I don't want to classify for that, but I think Mr. Dilling has brought out a point I am glad to see mentioned. I have never been able to get yarn to break as low in Gastonia as it does in Philadelphia. I have been up there and looked over their breaking machine, and it is just like ours, so I am inclined to believe that Mr. Dilling's statement argues a good deal for us. I find more trouble with samples than anything else. We bundle up a bunch of samples and send them up there by mail, and when they get there they do not break so good."

"It looks to me like that is a point for these humidifier salesmen," commented I. B. Covington, manager, Wadesboro (N. C.) Manufacturing Company. "They ought to be up in Philadelphia trying to sell those folks some humidifiers."

J. R. Wikle, division manager and superintendent, Ella Mill, Consolidated Textile Corporation, Shelby, N. C., was called upon, and replied that "we have experimented quite a lot with humidity, and about a year ago we had nine humidifiers in the spinning room. We put in six more and found we got the best results when our wet and dry bulbs were 12 degrees apart. We have our automatic controls set for that. Our carding and spinning is all in one place, and we built a false partition within six or seven feet of the floor so that all the humidity would stay in the spinning room."

J. T. Buff, overseer of spinning, American Spinning Company, Greenville, S. C., was next called upon, and stated that in his room in their coarse yarn mill, on 10s to 16s, he carries an average of 55 per cent relative humidity and gets what he calls good results. In the cloth room, 30s warp, he said he runs about 62 per cent, and that he has had no trouble with rusted rings and very little lap-ups. On 49 frames in the coarse yarn mill, he said, he very often will have as low as six ends down on the whole job. His regain, he said, figures about 7 per cent.

"Did you ever try experimenting with the humidity percentages in the cloth mill?" asked the chairman.

"The figure I gave is about where we find it runs best," said Mr. Buff. "I find if you get higher than that it gets damp and runs worse."

The chairman then called upon L. L. Brown, general superintendent, Clifton (S. C.) Mfg. Company, for information regarding the humidity he carries in his coarse and fine goods mills.

"On 13s, we run 8 degrees difference between the wet and dry bulbs," responded Mr. Brown. "It figures out about 65 per cent. We average a temperature of around 75 to 80. In the fine mill we run about 10 degrees difference to get best results."

"What humidity are you carrying, Mr. Edwards?" the chairman asked the superintendent of the Icemorlee Mills, of Monroe, N. C.

"All I can get through the humidifiers," was the answer.

"Do you have any trouble with rusting?"

"We have some trouble with rusting," said Mr. Edwards, "but we scour and keep the work running.'

"I carry 64 to 66, spinning 10s to 12s," reported D. F. Lanier, superintendent, Oxford (N. C.) Cotton Mills. "We find our work runs better there. Sometimes we have to start our humidifiers a few minutes before we start the machinery. We get all we can. On an ordinary day and under normal conditions, we can get 64 to 66. We can't always do that on a dry, hot day when we have to open up the building, but we usually do it from October to April, anyhow."

The chairman here asked the question, "How many of you know what percentage of relative humidity you are carrying in the spinning room?" and only one man out of half the men present held up his hand in affirmative answer.

The next speaker was L. E. Anderson, superintendent, Highland Park Mfg. Co., Charlotte, N. C., who said, "We are sort of like the rest of the folks here. We do not have sufficient equipment. We get all we can—about 55 to 60 on 26s to 30s. But the question we were discussing was about rusting rings and travelers. My observation is that we do not admit enough fresh air. We re-wash the air and get the air all gummy and sticky, while if we would admit a proper amount of fresh air we would find it would overcome the rust, and we could get away from the gummy condition and get better running work. I think when we get in too much mucky, close, damp, re-worked air that we get a condition that will rust and cause lap-ups. If we will admit a proper amount of fresh air and condition that properly, it will be beneficial to us."

W. W. Becknell, superintendent, Arkwright Mills, Arkwright, S. C., stated that on coarse numbers, "we try to hold right around 60 per cent. Like all the rest, we try to get all we can. Sometimes we get more than others."

Mr. Crowley, of Camden, said he could bear out what Mr. Anderson said with regard to letting in fresh air. "We have never had any trouble in the spinning room, but in the weave room, we have a good bit of rusting where we do not let in the air. If we let it in it will keep it off."

"I would just like to ask a question in that connection," requested Mr. Dilling, "with reference to the amount of rust or gummy substances that may result from the use of the improper quality of water. You know, some of us use water from wells, some from streams, and others from city supply—and especially with regard to the city supply, which has been treated with chemicals, etc. Some of these things may have an effect of causing the deposit of the moisture on the machinery in the form of rust. If any-

(*Continued on page* 621.)

# Scientific Trends with a Textile Slant

**The cotton industry lives, moves and progresses in terms of seven motivating factors which make up the structure of its life. The place which cotton holds in national wealth is determined by the proper balance and contributing action of each of these just as the entire bulk of national wealth is made up, to a very large degree, of the action of these same factors upon the ability of all industry to make fullest use of them.**

**The value of cotton to national wealth, as a national asset, and as a desirable investment and livelihood to the individual or the group depends upon the degree to which these seven fundamentals are applied to the conduct of business. No part of the industry can escape their influence or the reaction of any serious alteration in status of any one of them; any branch of the industry is incomplete without proper application of the lessons to be learned from the general trends of any of them.**

**Data to be useful must be properly interpreted; the greatest statistical bulk in the world is ineffective before discerning and far-sighted interpretation of an amount that is just far-reaching enough in scope to be representative and significant. An obscure collection of data may present very significant information of a condition that is little realized and the amassed figures of a large collection of commonplace and scarcely noticed events frequently point the way that indicates the wisdom of falling in with a general trend or making an abrupt change in policy.**

### Raw Materials.

The boll-weevil, the slogan of "reduced acreage," the yearly evidence of home markets unfilled completely by American-made products, and the disquieting factor and upset always occasioned when an unusual new industrial demand for any new material shows itself, ought to cure, once and for all, any tendency of the controlling factors in the industry to be lulled into a sense of security when the supply of the staple falls as far short of *normal* demand as a disastrous crop year brings about, be it from any cause whatsoever. The margin of carry-over is too slender even in normal times and it provides nothing whatever for emergencies.

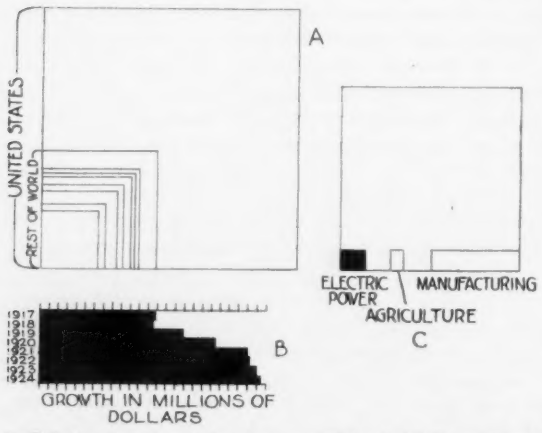
It seems to us, however, that its chief weakness lies in failure to provide for the safety of the capital investment. The usual methods of recovery of adverse business reactions comprise either the development of new markets, increased volume sales with lower percentage of profit per unit, or speculative holding of quantities of goods for a price and for strategic marketing. None of these excellent methods of protecting oneself against losses occasioned in other manners are possible where the total available supply of raw material has to be doled out on such a hand-to-mouth basis that it is scarcely possible to share it so that uniform manufacturing conditions and capacities can be maintained.

### Power.

Second in importance only to materials of the industry is the matter of the energy to be utilized for the various processes of converting these materials, its source, type, methods of utilization, rates and control, etc., present issues and call for decisions which affect the whole face of the industrial map.

The average manufacturer, who has not made an extensive study of the power situation, can hardly appreciate the alterations caused by the growth and development of electrical power systems. For steam and the other sources of industrial power are in some sections becoming obsolete in the face of the new giant.

The place which the United States occupies in the development of electrical energy and the parallel rise in industrial strength, the proportional investment in this utility compared with the two chief activities of the nation (farming and manufacturing), and the growth of electric power activities in the textile centers are phases of the problem which point the way, to neglect which is relegation to the group which stands still and then dwindles away.




**A. Relative investment in electric utilities in U. S. compared to each and all of the rest of the world. B. Growth of value of electric properties in a typical cotton-mill region. C. Proportional investment in electric power, compared to farming, manufacturing and all other investment in the nation's wealth.**

### Labor Efficiency.

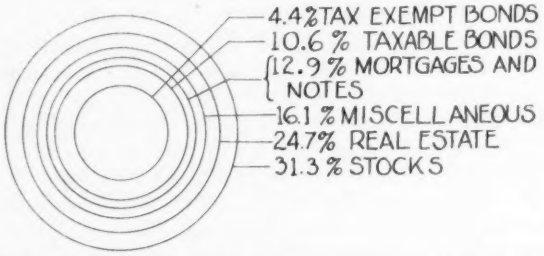
While the South continues to congratulate itself upon its general freedom from unionization, the general trend of growth of such organization in the rest of the country is still upward. Trades-membership also increases, which perhaps indicates a growing sense of responsibility among the unionized forces regarding the performance of their work. Certainly the union sets whatever standard may exist in the organized trades. Perhaps the sense of the whole matter is reflected in the fact that "white-collar" unionization makes no gain, an indication that a class of people who think perhaps more shrewdly than tradesmen have found the system wanting for the solution of their problems.

There can be little hope of permanent solution of labor uneasiness and unreasonableness in a program of administration of industry that fails to take into account the reactions upon a continuous program of work which can be brought about by failure to provide ample supplies of materials or of outlets for product. Usually the trouble is at the source of industrial organization and it is a very lame excuse in this day of scientific forecasting of business conditions to excuse a cut or a lay-off by the terse statement of "dull market conditions." We must come to the point of laying down a program of manufacturing and marketing, and basing considerations of price, upon the ultimate end of the planning for a continuous market for the labor just as surely as we do for assured profit for the invested capital—and the place to assure it is in the original planning.

### Finance.

Disclosure of the trend of the average individual's plan of investment rather gives the benefit of a large propor-

tion of invested money to the stocks, representing commercial enterprise, and to the properties which house them and their workers. This is to be expected, yet it does not seem to have penetrated to the mind of the average individual, first, how important proper financing is to the success of an industry, and second, how necessary it is that provision be made, with the financing, for carrying the financing charges adequate to span the period which shall secure success of an enterprise. The individual's general ignorance of matters financial is reflected in the conduct of many business arrangements.




**Analysis of a large number of personal estates, showing the trend toward which proportional division of the investment is running.**

Some progress has been made in that the world has had a rather wholesome, if dearly bought, lesson in the efficacy of the capitalistic system of administration. The chief value of modern mathematical science to business should be its contribution to our knowledge of what will be demanded, in time and cost, for the success of any enterprise. Then proper financing should be undertaken, not with distrust nor fear nor prejudice, but with confidence and employment of the best available experience to accomplish it.

Money is the lubricant of successful business enterprise and should be esteemed and appreciated for its true value—of being of service.

**Markets and Imported Competition.**

The volume of goods imported into the American market, at present, and absorbed eagerly and willingly, seems to indicate a factor of potential outlet for American industry that is either lost sight of altogether or else a solution of the problem, in methods of manufacturing and supplies of the proper types of raw and semi-manufactured materials to meet the specialized demand, is still in abeyance. Not only is the volume a large one, but, particularly in the style markets, the proportion it bears to the total volume of sales is sufficiently large to warrant extra effort on the part of finished goods mills to attempt to capture some of it. It is doubtful if the present state of the cotton industry is sufficiently advanced to warrant complete concentration of output of any mill on such potential markets, but it is safe to assume that each finished goods mill could afford to speculate on one specialty and develop reputation (and ability) in this specialty. This goes particularly for the new finished goods mills in the South, who have the whole world yet before them and no particular fame in brands, attached to their names.

Merchandise imported into the United States last year amounted to about one twenty-fifth, in value, of that manufactured here, and every textile man is conscious that the textile industry was one of the real sufferers from this condition. It is not expected that small mills could possibly achieve national dominance in large volume of branded finished goods, but development of the craftsman status in small productions, on a production-by-machinery basis, would be an investment with far-reaching possibilities.

**Advertising.**

The controversy as to whether we should be concerned with the proportion which advertising expense bears to total expense of doing business or to the increase in volume of sales falls into the background beside consideration of the effectiveness of each dollar spent in the advertising budget to promote and preserve permanent and progressive status of the product in the competitive field.

Little fear of present costs or concern with the smallness of present results may be felt if the effort and expenditure of each month and each year sees the product more and more firmly fixed in the market in such manner that the next logical step for the manufacturer of it is to develop small individual demand-characteristics with each brand so that these individual elements are constantly associated with the central idea of the major brand-characteristic itself. Prints, special finishes, quality-standards, etc., are proper enough efforts in themselves but the real objective of manufacturing (which advertising should pave the way for, extend, and foster) should be to fix central brand and quality ideas with *individuality* which can not be upset by style vagaries, so that each succeeding issue of a seasonal product should be merely an amplification and extension of the basic idea upon which the brand is conceived, and not a hit-or-miss spurt, from season to season, which can be upset by the competition of any clever conceit.

**Transportation.**

How the goods are moved must be a fundamental consideration when a certain manufacturer of important auxiliary machinery feature-advertises that his plant is conveniently situated on the main hard road so that his customers may obtain emergency shipments by truck. This, undoubtedly, has its advantages in closely competitive selling.

But in the whole expense of marketing a product the cost or delivery, whether paid by shipper or consignee, is out of all proportion to the value of the material shipped. It presents striking inconsistencies in such matters as building materials, where a weight reduction is a commercial coup, and the manufacturer of cork products can dominate a relative field in which a plaster-board manufacturer, with his heavier material, is forced to compete.

Perhaps the nation-wide movement for better roads voices a protest that is more than the plaint of the driver of pleasure vehicles. At least, the Government is solidly back of the movement and it is certainly up to the individual States to examine their own actions and policies carefully to see to it that they are not guilty of blind sectionalism, to the detriment of their own general good. No State can afford to have one half its roads perfect and the other half a reproach. It is inevitable that the well-served half will pay the additional hauling cost of goods drawn from the ill-fated section.

Road-haulage is no solution, however, for the general run of goods transportation, at least not yet. Continually rising rates of freight and non-parallel degrees of service therewith point to a not distant day when more than electric power will be centralized and put into super-systems. The freight carriers will have to solve this justified complaint or give place to more efficient means of transportation, grouped within the control and administration of a smaller and more directly responsible body.

# Human Relationships in Industry

BY W. M. McLAURINE.

### Planning.

Every man who expects to build a home, either draws a detailed plan of his ideas, or he employs someone else to do this. He then studies his plans carefully to see whether they contain the elements which he desires, the way in which he desires them, the cost, efficiency, time and many other things which his own individuality suggests. He then proceeds to modify or approve them as the case may be. Then, he puts his plans into intelligent execution, often further amending and modifying them as their practical applications necessitate.

All people, who are wise, plan how they shall spend their time, their energies and their money.

Often, success or failure is determined by this one element of business life.

I venture to say that not one man in ten can tell you how he spends any of the three suggested possessions, with any degree of accuracy or intelligence.

We know how much salary we make and how much we have or do not have at the end of the week or month or year. We have no idea of how we spent it or of how we should have spent it.

We know that we work eight, ten, or twelve hours each day, but how we spend it, or how we should spend it, we do not know, We know that we often are exhausted, bodily and mentally, at the end of the day, but we do not know whether our job requires that we should be in that condition, or whether it is due to our own intelligence or lack of intelligence.

Confusion is one of the most costly factors in private and industrial life. It costs money, time, effort, and a hundred other details that could be strung out with but *little* thinking.

This day of industrial activity is exacting in its demands. We must meet the requirements or be supplanted by others. Planning appeals to me as one of the effective measures that may be used in the economic distribution of the overseer's efforts.

In discussing the duties and responsibilities of the overseer, there was indicated quite a group. To look at them hastily, their discharge seems almost impracticable and impossible, but with careful planning, the overseer can not only discharge these, but can have time for others.

The objectives of this conference are:

1. To impress upon the group that planning is a necessary element in industrial life.

2. To have the members of the group to study the methods they may employ in making out a plan.

3. To make a plan, setting forth some of the duties, their importance and sequence, etc.

In order to get the group started on this discussion, it is suggested that the group shall refer to the conference on "Duties and Responsibilities of Overseers." It may be well for them to refer to the conference on "Leadership or Qualifications for Overseers." With these two in mind, it will be well to make a practical working list of their duties as they apply specifically to their job, listing these duties under the three main heads—Supervising, Managing and Instructing. This study will impress each of the group with the manifold duties he must attend. It will impress him with the seriousness and dignity of his position. It will also have a tendency to overwhelm him and have him to exclaim, "Oh, well, it is impossible for a man to do that," and react unfavorably, if we stopped here.

The next, suggestion is that you have each member of the group indicate on the chart, as he reviews it, the things that he has been doing and this will leave, in bold relief, the things omitted from his daily duty. It will be of value to discuss these omissions to try to ascertain their value. A great difference of opinions will likely be brought out as to omissions and their values. Herein lies a great value in this conference method—mental agitation on constructive lines. Free, open, unbiased, honest discussion on a constructive program is always good. No one may be convinced, but he can't stop thinking and subconsciously something said will eventually burst forth into his conscious mind, and express itself in action. Below are a few questions that will perhaps help the group to feel the importance of planning.

1. In your work, yesterday, did you omit something that you should have done? Why?

2. Did you cover all of your responsibility points?

3. Did you keep any employees or machines idle because of some inefficiency as an overseer?

4. Have you made any plans for cost reducing in your department? If so, what are they?

5. What plans have you for enforcing company policies, plant regulations, accidents, etc.?

6. From a study of your records and reports, what plans could you make that would be of general good?

7. Why do you come on your job "all fussed up" some mornings, and as the day proceeds, you get worse and worse?

8. Why are you so rushed all of the time?

9. Why do you seemingly have nothing to do?

10. What do the operatives think of a man who is always so busy that he does not know what he will do next?

11. Which of your duties require the most of your time? Why?

12. Do you think your distribution of time in the discharge of your duties is equitable?

13. What jobs can you remember, either as operative or overseer, on which you failed, because you had not planned how to do it.

14. What results do you have, trying to do Christmas shopping from memory?

15. What are the costs of no planning or poor planning?

There are other questions that the conference leader may introduce.

A word of caution should be given here. Everyone knows that to handle a job in which the human element and probabilities of machines are involved, requires adaptability and resourcefulness.

Possibly it is impossible to make any plan that can be carried out in detail whether such plan shall be for a day or a week. I do mean to say that the general plan can be

followed, and it will make for ease and comfort on the part of all concerned, provided such plan has been made out with intelligence.

Neither do I mean for the group to infer here that a detailed written plan should be made out each day and followed verbatim. I do mean to say that until an overseer is sure he is covering all of his responsibility points in the most efficient manner for all concerned, that he should make a plan and then execute it as his best judgment directs. I venture a further suggestion that at the end of the day the overseer should review his plan to test its practical value or weakness, making notes of errors and omissions if there are such. This current discussion indicates the second objective that we must consider; the method of planning. At this point, we should have a mind agitated with a sense of duties and responsibilities, a desire to properly discharge them, and a desire to know how we may discharge them. Planning seems to offer at least a partial solution.

What are some of the fundamentals of planning?

In order to plan there must be knowledge of what is to be done, there must be an ability to assemble this knowledge and arrange it in an analytical form. In as much as the knowledge of work to be done seems to be present, the next natural step is the method of planning.

It occurs to me that there are several headings that may be suggested as divisions for a general analysis.

I. Management:
  1. Men.
    a. Selection of second hands and section men. (a) Duties and responsibilities. (b) Authority given them.
    b. Hiring of workers. (a) Placement. (b) Instruction. (c) Task, or duties.
    c. Transfers, promotions, discharges.
  2. Machines—how arranged.
    a. Processes and sequences.
    b. Efficiency—average or maximum.
    c. Auxiliary.
  3. Materials.
    a. Raw products or products in processes.
    b. Finished material.
    c. Waste.
    d. Supplies and their distribution, use and care.

II. Supervision:
  1. Method.
    a. What to look for in man.
    b. What to look for in machines.
    c. What to look for in materials.
    d. Time to be spent in this work.
    e. Manner of doing it.
    f. Which men, or machines, or products, need most supervision.
    g. Make notes for further plans.
    h. Study standards.
    i. Need for the transfer, promotion or discharge.

III. Instruction:
  1. Let instruction be based on notes made in supervision.
    a. For efficiency—care of machine, of material in process, and care of self and others.
    b. For promotion.
    c. For developing proper incentives.
    d. For safety.
    e. For cooperation.
    f. For self. (a) Study records and reports. (b) Study plan sheet. (c) Read something on your work.

After such a general analysis as this has been completed of the details of duty, then another arrangement could be made, listing them in the order of importance, sequency and time.

After this has been done, it occurs to me that the overseer has a very valuable sheet to direct his daily activities, and which will relieve his mind of much worry and strain, and enable him to proceed methodically and systematically in his work.

The mind is very much like a machine in many respects. It is supposed to function with some method and for some purpose. As long as we dash here and there, without any plan, following emergencies, and hastening on to something else, so long will there be emergencies and need for haste.

I suffered from eye-strain for three years, because I blieved that my eyes were good and did not need glasses. Finally, through persuasion, I had my eyes fitted with glasses, and in the language of Briggs, the cartoonist, "Oh, Boy! ain't it a grand and glorious feeling."

It is a big job to do the things I have indicated in this entire series of conferences. If you will notice, not one single thing has been suggested that requires the hand. I have appealed to the head and heart only. Head work is hard work, therefore few people will do it. Haste hinders heart action toward one's fellows.

It is of value to make this planning study, as it gets all of the duties and responsibilities of an overseer clearly before him.

It enables him to visualize them and make out a system for their execution. This will enable him to think systematically on other lines.

It will act as a mirror for him to see himself as others see him.

It will enable him to keep check on his time and activities.

It will enable him to grow, and become a more capable executive.

It will create respect and confidence on the part of the operatives toward him. It will increase cooperation. Cooperation means happiness and joy and peace and ease of mind; greater efficiency, greater production, increased pay, better citizens, a better community and a more glorious state. Are you willing to pay the price?

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The 58th edition of Dockham's American Report and Directory of the Textile Manufacture and Dry Goods Trade has been issued. This volume, a biennial edition, embraces the cotton, woolen, worsted, silk, flax, jute, linen, hosiery and knit goods manufacturers, print works, bleacheries, dyers, finishers and mercerizers and showing producers and distributors in these branches of the trade. The price of the directory is $8.50 a copy, and the publishers are Dockham Publishing Co., 46 Cornhill, Boston, Mass.

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The National Aniline & Chemical Company issued their usual booklet, "Dyers' Formulas," containing recipes prepared by the dye application laboratories of that company for matching the shades shown in the 1925 spring season shade card of the Textile Color Card Association of the United States, Inc., on silk, cotton and wool.

# How to Make Mill Tests Mean Something

BY A TESTER

Nothing is so conducive to the efficiency of any mill as tests to determine facts and figures on operations and practices in vogue. To make a test is even more than to make a quick conclusion at a haphazard observation. To make a test requires time, interest, and most of all, *work*. To make a test requires a definite method and accurate measurements.

A test is not of full value unless followed up with comparative tests. One test alone may give a very false conclusion because of certain circumstances at the time of the test giving abnormal or subnormal results. With this in view the writer wishes to give some of the fruits of a number of years of work along this line which might be of some benefit to readers of COTTON.

*Time.* All mill operations are gauged in some element of time in determining production and efficiency. An accurate speed indicator is of inestimable value in conducting any test relative to speed. The writer has used a number of different kinds of instruments and has found that an instrument consisting of two dials, one recording the time by a stop watch and the other recording the revolutions, is the best. This instrument is automatic in that it starts the stop watch the instant the revolutions start. This instrument is the most accurate and is good for any range of speeds. An investment in one of these instruments by any mill is well worth while.

Recently I was getting the front roll speed of a spinning frame with an ordinary watch and the finger. The result was 94 r.p.m. Using the instrument above mentioned the exact r.p.m. was found to be 91.5, showing how inaccurate the second hand of an ordinary watch can be.

*Weights.* Accurate scales should always be used to determine results obtained. Needless to say, results desired in ounces should not be estimated on a scale reading in pounds; yet this is often done and wrong conclusions reached. An excellent scale is one that consists of two balanced pans and is accurate to 1/100 of an ounce and has a capacity of eight pounds. This is excellent for conducting waste tests on cards and pickers where a small amount of waste is to be weighed.

*Comparison.* The writer has conducted numberless and systematic tests in a number of different mills and has kept carefully the results of all these tests and it is indeed interesting to compare the results obtained in one mill with results obtained in another, with the tests being conducted in the same manner.

*Method.* Some definite method must be followed to obtain the proper results and it is the purpose of this article to give a general outline of the method of conducting some general tests that will be of value to the mill superintendent.

### No. 1—Variation Tests.

The purpose of conducting the following tests is to determine the amount of variation from the standard that exists, and some surprising results will be obtained if these tests are carried out. It will tell where the variations in the finished product (yarn) are coming from and where to stop the trouble.

*Pickers.* Take six laps weighing above standard weight and class as maximum laps. Weigh twelve separate yards from each lap in fractional parts of an ounce. Calculate the variation in weight in the lowest yard and the highest yard from each lap. Also the variation in the highest and the lowest yards taken from all six laps.

Take six laps weighing below standard weight and class as minimum laps. Proceed as in maximum laps.

Total maximum variation is found from lightest and heaviest yard in all twelve laps taken.

*Cards.* Take six cans of sliver at random from the cards just before stripping and weigh twelve yards from each can. Calculate the variation in the weight of the heaviest and the lightest sliver from each can, also the variation in the total six cans taken before stripping.

Repeat for six cans taken just after stripping.

Calculate the total maximum variation in the twelve cans taken.

*Drawing.* Take six cans from the first drawing and proceed as in the cards.

Take six cans from the second drawing and proceed as in the first drawing.

*Fly Frames.* Take two bobbins from each fly frame—one from the front row of spindles and the other from the back row of spindles. Weigh six 12-yard skeins from each bobbin. Calculate the variation in hank number of each bobbin. Calculate the variation in hank number of all bobbins covering all the frames making that particular number of roving.

*Filling Spinning Frames.* Take four bobbins from four frames at random making one standard of yarn number Weigh four 120-yard skeins from each bobbin. Find the variation in each bobbin, each frame and the total variation in all the frames making this number.

*Warp Spinning Frames.* Handle the same as in filling but with the addition that each skein is tested for breaking strength with the corresponding variations as in yarn number also calculated.

The results of a complete survey of a southern mill along this line is given in Table No. 1 and may be used as a guide for anyone conducting these tests.

TABLE No. 1.

SUMMARY OF
Variation Tests of an Average Mill

Date: Dec., 1924.

| Process | No. of Tests | Standard Weight | Maximum Variation | Pct. of Variation |
|---|---|---|---|---|
| Breaker Pickers | 50 | 15½ oz. | 5.30 oz. | 34.2% |
| Int. Pickers | 50 | 15 oz. | 4.20 oz. | 28.0% |
| Finisher Pickers | 50 | 13½ oz | 1.60 oz. | 11.8% |
| Cards—Before Stripping | 50 | 45 gr. | 9.1 gr. | 20.2% |
| Cards—After Stripping | 50 | 45 gr. | 12.7 gr. | 28.2% |
| Breaker Drawing | 50 | 48 gr. | 7.0 gr. | 14.6% |
| Finisher Drawing | 50 | 52 gr. | 5.9 gr. | 11.3% |
| Slubber | 10 | .55 hk. | .03 hk. | 5.4% |
| Slubber | 15 | .65 hk. | .04 hk. | 6.0% |
| Intermediate | 40 | 1.30 hk. | .08 hk. | 6.2% |
| Intermediate | 60 | 1.80 hk. | .24 hk. | 13.3% |
| Fine Frames | 15 | 5.75 hk. | .60 hk. | 10.4% |
| Fine Frames | 65 | 5.50 hk. | 1.50 hk. | 27.3% |
| Fine Frames | 55 | 4.00 hk. | .89 hk. | 22.2% |
| Warp Spinning | 25 | 26 | 5.42 Nos. | 20.85% |
| Warp Spinning | 25 | 31 | 5.31 Nos. | 17.13% |
| Filling Spinning | 25 | 22 | 2.14 Nos. | 9.75% |
| Filling Spinning | 25 | 23 | 2.62 Nos. | 11.40% |
| Filling Spinning | 25 | 24 | 4.50 Nos. | 18.70% |

### No. 2—Waste Tests on Picking and Carding.

Some mills keep very accurate records on the amount

of waste made in each general process, but this does not always tell where undue waste is being made, as the waste is usually kept separate only as to its classification for selling purposes. With this in mind it is well for a mill to make a special test of the amount of waste made in the opening, picking and carding processes and many dollars can be saved by conducting and *following up* these tests. I know of one superintendent who made one of these tests religiously every few months and by so doing saved his salary many times over to his employers.

The data shown in Table No. 2 gives the general method and form for conducting one of these tests.

TABLE No. 2.

Blank Mill—December, 1924.

Report on test of waste made on cotton opened through the finisher picker.

| | | |
|---|---|---|
| Cotton Opened | 474 lbs. | Grade of Cotton |
| Reworkable Waste Added | 50 lbs. | St. Low Middling |
| | | 1 1/16-inch Staple |
| Total | 524 lbs. | |

NOTE: Cotton was passed through tandem vertical openers.

*Vertical Opener No. 1.*

| Visible Waste | Pounds | Waste Per Cent |
|---|---|---|
| Screen | 2.44 | .465 |
| Beater | 3.62 | .692 |
| Cage | .94 | .179 |
| Total | 7.00 | 1.336 |

*Vertical Opener No. 2.*

| Visible Waste | Pounds | Per Cent |
|---|---|---|
| Screen | 1.47 | .281 |
| Beater | 2.62 | .499 |
| Cage | .81 | .154 |
| Total | 4.90 | .934 |

*Breaker Picker Visible Waste.*

| | Pounds | Per Cent |
|---|---|---|
| Buckley Section | 7.69 | 1.465 |
| Two-Blade Section | 2.69 | .513 |
| | 10.38 | 1.978 |

| | Pounds | Per Cent |
|---|---|---|
| Cotton Fed | 524 | |
| Cotton Delivered from Breaker Pickers | 486 | |
| Total Waste | 38 | 7.26 |
| Visible Waste | 22.28 | 4.25 |
| Invisible Waste | 15.72 | 3.01 |

NOTE: Invisible waste includes dust to dust house.

| | Pounds | Per Cent |
|---|---|---|
| Fed to Finisher Picker | 483.69 | |
| Delivered by Finisher Picker | 477.38 | |
| Visible Waste | 3.50 | .667 |
| Invisible Waste | 2.81 | .536 |
| Total Waste | 6.31 | 1.203 |

*Grand Total.*

| | Pounds | Per Cent |
|---|---|---|
| Vertical No. 1 | 7.00 | 1.336 |
| Vertical No. 2 | 4.90 | .934 |
| Breaker Picker | 10.38 | 1.978 |
| Invisible Waste for Verticals and Breaker Picker | 15.72 | 3.010 |
| Finisher Picker Visible Waste | 3.50 | .667 |
| Finisher Picker, Invisible | 2.81 | .536 |
| Total Visible and Invisible Waste made | 44.31 | 8.461 |
| Total Visible Waste | 4.915 | |
| Total Invisible Waste | 3.546 | |
| Total | 8.461 | |

Continuing this same test on through the cards gives us the results shown in Table No. 3.

TABLE No. 3.

Test on Waste Made in Cards.

| Card No. | 1 | 2 | 3 |
|---|---|---|---|
| Cotton Fed | 40.595 lbs. | 38.906 lbs. | 41.031 lbs. |
| Cotton Delivered | 37.562 lbs. | 36.938 lbs. | 36.812 lbs. |
| Total Waste | 3.033 lbs. | 1.968 lbs. | 4.219 lbs. |
| Per Cent of Waste | 7.47% | 5.05% | 10.25% |

| 4 | 5 | 6 | Total |
|---|---|---|---|
| 40.406 lbs. | 41.344 lbs. | 40.094 lbs. | 242.376 |
| 38.750 lbs. | 38.812 lbs. | 37.875 lbs. | 226.749 |
| 1.656 lbs. | 2.532 lbs. | 2.219 lbs. | 15.627 |
| 4.28% | 6.13% | 5.85% | 6.5% |

The total average visible and invisible waste made on the six cards was found to be 6.5%.

Details of Visible Waste Made on These Cards.

| Card No. | 1 | 2 | 3 |
|---|---|---|---|
| Flat Strips | 1 lb. 4 oz. | 13 oz. | 1 lb. 2 oz. |
| Cylinder Strips | 6 | 5 | 5 |
| Doffer Strips | 2 | 2 | 2 |
| Fly | 1 | 1 | 1 |
| Screenings | 12 | 12 | 13 |
| Sweepings | ½ | ½ | ½ |
| Total Visible Waste, Pounds | 2.592 | 2.094 | 2.468 |
| Per Cent | 6.38 | 5.37 | 6.02 |

| 4 | 5 | 6 | Total |
|---|---|---|---|
| 1 lb. 2 oz. | 14 oz. | 14 oz. | |
| 5 | 4 | 4 | |
| 2 | 2 | 2 | |
| 1 | 1 | 1 | |
| 11 | 10 | 11 | |
| ½ | ½ | ½ | |
| 2.344 | 1.968 | 2.094 | 13.560 |
| 5.81 | 4.77 | 5.22 | 5.6 |

| | | |
|---|---|---|
| Total Average Visible Waste | 5.6% | 13.560 lbs. |
| Total Average Invisible Waste | .9% | 2.067 lbs. |
| Total Visible and Invisible | 6.5% | 15.627 lbs. |

**No. 3—Testing the Increase in Breaking Strength Due to Sizing Materials.**

The method for conducting this test is to select several bobbins of full warp yarn and arrange so that they will unwind readily from the back of the slasher. These are carried along with the beams and with a special lease they are separated in front of the slasher just before it is wound on the loom beam. Here is placed a regular yarn reel and with the aid of an assistant to keep the slackness out this thread it is wound up on the reel ready for testing on the breaking machine. With a little practice it is very easy to adjust the turning of the reel to the speed of the delivery of the slasher. Take several tests from one bobbin, then take another bobbin and so run it through the slasher and save the skeins for testing.

Then we will have skeins of yarn that have been sized from a certain bobbin and from this bobbin we can get another skein that has not been sized and by breaking all the skeins that have been sized from each bobbin and comparing with similar breaks on unsized yarn from the same bobbins the relative increase in breaking strength can be found. I have found that 31s yarn will have an average of 10 pounds increase in strength due to sizing and sometimes special threads or bobbins will run as high as 15 pounds.

If there is any trouble with the slasher dragging or straining the yarn this test will readily show it up for the purpose of all sizing is to give added strength and

increased surface to prevent chafing. If the slasher does not show from 10 per cent to 25 per cent increase in breaking strength due to sizing then there is something wrong with the slasher or the sizing.

The writer once made a test as outlined and found practically no increase in breaking strength and, after investigation, found the first size roll had broken its key that fastened it to the drive shaft and so the yarn, instead of the shaft, was pulling the size roll. Needless to say, the weaving picked up when this was remedied.

**No. 4—Tests on Loom Stoppage.**

An excellent test to follow up the weaving with, especially where production is needed, is to run a test to determine the causes of stoppages on Draper looms. A card is placed on each loom with the causes of stoppage printed thereon. For a given length of time each stop is recorded and the reason for it, giving some very valuable information as to what is hurting the weaving. A good example of an actual test in a mill recently is given in Table No. 4.

TABLE NO. 4.

LOOM STOPPAGE TEST

Weather—Rainy and Damp.

Time of Test. 8 Hours. Date: Dec. 19, 1924.

| Loom No. | 84 | 166 | 165 | 168 | 167 | 88 | 87 | 86 | 85 | 83 | Total | Stops per Loom Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cloth—80x80 4.00 Print Cloth | | | | | | | | | | |
| Gouts | 1 | 3 | 2 | 1 | 3 | 2 | 3 | 1 | 2 | 1 | 20 | .25 |
| Knots | 2 | 1 | 1 | 2 | 3 | 2 | 4 | 1 | 5 | 1 | 22 | .27 |
| Waste | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | .01 |
| Spooler Kinks | 4 | 0 | 3 | 2 | 5 | 5 | 2 | 1 | 2 | 2 | 26 | .32 |
| Filling | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .00 |
| Harness Eye | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 4 | .05 |
| Weak Yarn | 3 | 1 | 5 | 3 | 6 | 4 | 1 | 1 | 2 | 4 | 30 | .37 |
| Selvage | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | .06 |
| Total | 16 | 5 | 12 | 8 | 18 | 13 | 10 | 4 | 14 | 8 | 108 | 1.33 |
| Stops per Loom Hr. | 2 | 6 | 1.5 | 1. | 2.3 | 1.6 | 1.3 | .5 | 1.8 | 1.0 | 1.3 | |

From this loom stoppage test made we may conclude that a loom stops as follows:

From any cause—Once every 44 minutes.
From Gouts—Once every 240 minutes or 4 hours.
From Knots—Once every 222 minutes or 4 hours.
From Waste—Once every 6000 minutes or 100 hours.
From Spooler Kinks—Once every 186 minutes or 3 hours.
From Filling—Looms do not stop.
From Harness Eyes—Once every 1200 minutes or 20 hours.
From Weak Yarn—Once every 162 minutes or 3 hours.
Selvage—Once every 1000 minutes or 16.5 hours.

From this information a good line can be gotten on what is causing the looms to stop. Discounting weak yarn and working on spooler kinks, knots and gouts about 63 per cent of the stoppage could be eliminated. So we can arrange an infinite number of tests to cover every process and thing done in the mill and thereby increase the efficiency of the plant with less labor and more thinking.

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Advanced Textile Design, by William Watson. Second Edition. Longmans, Green & Co., 55 Fifth Avenue, New York City, publishers. Price, $7.00 per copy.

The first edition of this book, issued in 1912, dealt with compound and special cloths in which two or more series of threads are employed in one or both directions, or which are produced in special methods, with the principles upon which colors are applied to various cloths being described and illustrated.

In the present edition, just issued, the original text has been carefully corrected and revised so as to bring the matter up-to-date, and an appendix has been added covering, "Special Classes of Madras Gauze Fabrics." Copies may be secured from the publishers or through COTTON'S book department at the price stated.

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**Yet,**

**Workers are tools!**

**But as long as their hands and bodies are functioning, we content ourselves with health and welfare gauges of their condition, and the hap-hazard of circumstance for their usefulness.**

**Close and accustomed contact often gives them a knowledge of detail and a practical, everyday insight into possibilities that could never be approached by the long-distance, detached view of management.**

**We rack our own mental and executive-help resources in vain search for solutions that would come on the instant to the man on the job.**

**The minds of our workers, from yard-men through the assistant-assistant to, especially, our salesmen, are veritable mines of unexplored wealth—tools of the future that repay care, furbishing-up, and intelligent use far beyond the responsiveness of steel or mechanical power.**

**Opportunity, created by responsibility, is the sure avenue of development. Give most of them the incentive and the chance, and they are off on an unsuspected course of self-improvement—and plant profit.**

**The most dyed-in-the-wool, materialistic, Shylockian policy that could be exercised in a money-mad race for more profit is an indulgence in the apparently unselfish munificence of encouraging and making worthwhile this thing of self-development—thereby,**

**Mining the minds of our workers—for our and their profit!**

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The 1925 edition of "The Textile Manufacturer Year Book," the annual English volume, has been issued. Material appearing in the previous six editions, with relation to various phases of textile manufacture, is incorporated in this, the seventh edition, and an additional article on artificial silk is included as a new feature in this issue. This deals in a practical manner with the winding, warping, sizing, and weaving of this fiber, being based on actual experience in handling artificial silk. Another new feature is a section containing some original tabulated data relating to various cotton spinning and preparatory machines, giving convenient formulas and constants for the ready calculation of production, etc. New tables and a diagram showing the movements in weekly prices of cotton for the season ending July, 1924, appear also.

The book may be secured through COTTON'S Book Department, or direct from the publishers, Emmott & Co., Ltd., 65 King Street, Manchester, England.

# Towels and Toweling

BY T. WOODHOUSE AND A. BRAND.

### Turkish Toweling or Terry Fabrics.

The description "terry" may be applied correctly to all fabrics in which the surface is formed of looped pile, even although the loops are cut at a later stage to form U-shaped fibrous tufts, e.g., terry-velvet. Modern usage, however—probably due to the great diversity of pile fabrics—is to apply the term almost exclusively to looped pile fabrics in which the pile loops are formed *without* the aid of wires.

The first title of the fabric indicates that the cloths originated in Turkey, and probably the pile was formed in the weft by drawing the latter upwards by means of some hooked instrument every pile pick. Such a method would obviously be a very slow method of producing cloth, but it might have suggested the more modern method of forming the loops mechanically by the warp. It has been conjectured, however, that the term is derived from the French verb "tirer," to pull or draw out, because this verb is pronounced tee-ray and hence has resemblance to the word terry, and because the meaning of this verb from a textile point of view has reference to the drawing out of the wires which are used in the formation of loops (somewhat similar to the terry loops) in certain pile fabrics, such as, for example, Brussels carpeting. Nevertheless, terry fabrics for use as toweling are invariably produced in looms without the aid of wires, but having a special "terry motion."

This type of fabric is particularly suitable for towels, bath mats, and the like. The formation of pile loops projecting from each side of the basic or ground fabric gives comparatively great bulk for the weight of yarn employed, and also provides a large increase in the absorptive surface.

The production of any particular terry toweling fabric depends upon three conditions, as follows:

(a) The weave structure. This is obvious, of course, as all fabrics are characterized, *ab initio*, from the particular method of interlacing and manipulating the warp and filling which happens to be employed. This condition is postulated here merely for the sake of completeness.

(b) Two series or sets of warp threads. Each set of warp threads is accommodated on a separate warp beam which is individually tensioned and controlled. One beam carries the pile warp which forms the characteristic loops, while the second beam carries the ground warp which interweaves with the filling to form the basic or ground fabric from which the pile loops project.

(c) The terry motion. In conjunction with the use of the two warps described above, special parts are added to the usual loom mechanism which constitute the terry motion, and which perform the mechanical duties necessary for the production of the terry pile.

A large number of ingenious mechanisms has been introduced for this purpose from time to time, and some of these will be discussed at a later stage. One of the most commonly used motions involves the use of a variable movement of the reed, and as an understanding of at least one method is essential to the appreciation of the designs and intersections which will be given later, the following brief description of one such motion is included here.

In terry pile motions of the type above indicated, the reed is mounted in a frame or casing carried at the upper ends of two levers pivoted on studs, the studs being bolted to the lay or sley swords. The lay is actuated by a crank shaft and connecting arms in the usual manner, and has a constant throw or travel. The reed, by means of the above-mentioned levers and other supplementary mechanism, can be made to move relatively to the lay at predetermined intervals. Since the reed can thus occupy two positions relative to the lay, there are, in consequence, two positions which may be occupied by the fell of the cloth. One of these two positions is when both the reed and the lay are

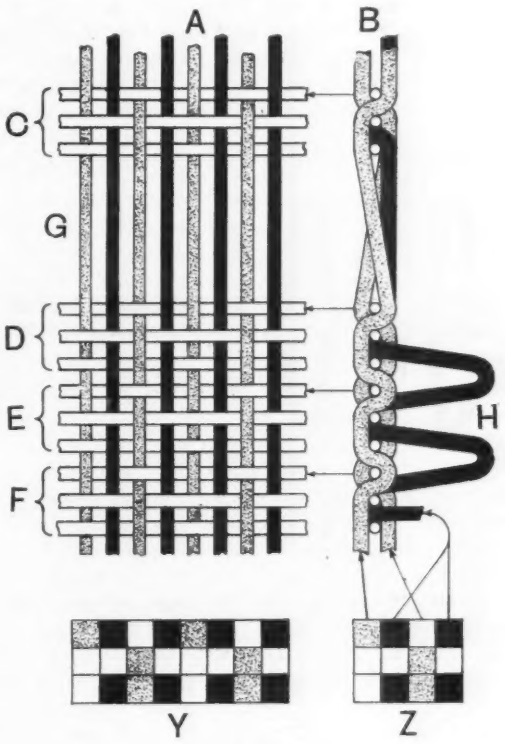



Fig. 89.

in their full forward positions, and the other is when the lay is in its full forward position while the reed occupies a position which is slightly removed from the original fell of the cloth.

The usual sequence of operations in the production of these interesting fabrics may be better understood after reference to Fig. 89, where A is a diagrammatic plan of a portion of a so-called 3-pick terry fabric, embracing 8 warp threads and 12 picks of filling, of a type not often used in actual practice, in which the pile loops are formed on one side of the fabric only. The pile warp threads are shown in solid black, while the ground warp threads are distinguished by stippling, and the filling is left white.

It should be distinctly understood that these arbitrary markings are for demonstration purposes only: to make the interlacings of each thread more easily followed. It is

not to be implied that the different markings indicate differences in the actual yarns employed as pile or ground warp, or as filling. Indeed, it is quite probable that both kinds of warp yarn are identical in every way except their purpose in the cloth, while the filling may also be of exactly the same kind of yarn. On the other hand, the three types may differ in more than one way.

In the plan A, Fig. 89, four groups of picks marked C, D, E and F, are indicated. Each group consists of three different picks, the interlacings of which are identical with the three picks of the point paper design Y; this design embraces all the 8 warp threads. The three groups, D, E and F, are shown occupying their final positions in the fabric, but there is a gap or "fret," G, between the upper set D of these three groups and the fourth group C.

Assume that the shuttle has crossed the lay and left a trail of filling corresponding to the first pick of group C, and that the lay is moving towards the fell of the cloth. The terry motion acts so as to prevent the reed from moving its maximum distance; in other words, it is held back, so to speak, when it has reached a position near to but not touching the real fell of the cloth, thus leaving the gap G.

The second pick of the group C is now inserted, and the reed repeats its former shorter-distance motion. Both these picks are termed "loose" picks. Now the third and last pick of the group is thrown in; the terry motion is placed

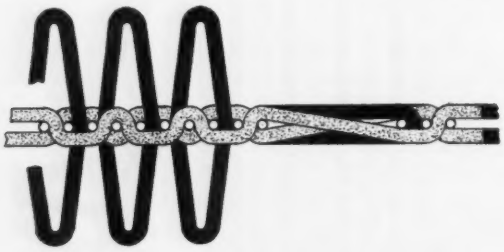


Fig. 90.

out of action and the reed moves to its full forward position; hence, when the beat-up occurs, all the three picks in group C are simultaneously pushed towards the fell of the cloth and in close company to the previous group D.

As already explained the two warps, pile and ground, are on separate warp beams. The ground warp is heavily tensioned in the usual manner, while the pile warp is very lightly tensioned. When the beat-up occurs on this third or "fast" pick, as it is termed, the complete group of three picks is moved towards the fell of the cloth, and, in virtue of their interlacing with the loosely-tensioned pile warp threads, these threads are drawn off the pile warp beam a distance equal to the gap G, while simultaneously the short stretches of straight pile threads, which bridge the gap G, are caused to double up on their length and produce pile loops similar to those shown at H in the intersection B. It will thus be seen that the three picks C are capable of being slid on the heavily-tensioned stippled or ground threads, but are able to grip the black or pile threads and carry them forward as demonstrated. All the fast pile picks in Fig. 89 are marked with an arrow.

The point paper design Z, Fig. 89, immediately below the intersection B, shows one repeat or unit of the design. It is complete on 4 threads and 3 picks, and would require 3 harnesses only, since the 2nd and 4th threads (the pile threads) work exactly alike. As already indicated, this design produces terry-cloth of the most elementary nature, and of a type not quite suitable for toweling, since the characteristic pile loops are formed on one side of the fabric only. The various parts of Fig. 89 are used here solely to illustrate the terry principle in as simple a manner as possible. A slight alteration in the design Z is all that is necessary to convert this weave into the standard 3-pick terry weave, in which the pile loops of the resulting cloth are produced on both sides of the fabric. When this alteration has been made and the cloth woven, an intersection of it would appear similar to that illustrated in Fig. 90.

The alteration in the design above referred to may be

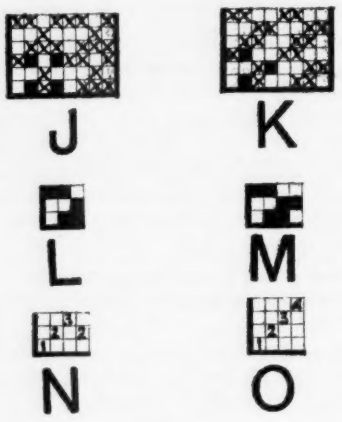



Fig. 91.

best appreciated by comparing the two sets of designs, weaving plans and drafts shown in Fig. 91. The design J in Fig. 91 exhibits four repeats of the unit weave Z, Fig. 89, while L is its weaving plan and N the corresponding draft. The design J is complete on 4 threads and 3 picks, and requires 3 harnesses with the draft indicated. This design produces the fabric shown at A and B, Fig. 89. In the unit weave of design J, the pile threads are marked in solid black squares, and are identical with each other. The ground threads interweave exactly opposite to one another, the first moving 2 down 1 up, while the other moves 2 up 1 down.

The ground weave in design K, Fig. 91, is precisely the same as that in design J; there is one important difference, however, in the movement of the pile threads. Both pile threads in design J are alike, but those in design K are different. The second pile thread in the latter design interweaves exactly oppositely to the first, with the result that one set of pile threads forms pile loops on the face of the cloth, while the other set of pile threads forms exactly similar loops on the back of the cloth. This altered design produces the orthodox 3-pick terry fabric shown in Fig. 90, and necessitates 4 harnesses. The weaving plan is altered from L to M, and the draft N is correspondingly altered to the draft O. It will be seen that the unit weave in both cases is complete on 4 threads and 3 picks, but that the design K requires one more harness than design J.

Typical examples of 3-pick terry fabrics are reproduced photographically in Fig. 92. Sample P is fully bleached and is made from single cotton yarns; there are 30 threads per inch and about 40 picks per inch. A selvage is seen at the left-hand side. The ratio of the length of the pile

warp to the length of the cloth is roughly 5½ to 1. It can be calculated more exactly as follows:

A pile thread withdrawn from a portion of the cloth 2⅞ inches long measures on extension to its full length 16¼ inches. The length of pile warp required for each 100 yards of cloth is therefore 100 yards $\times \frac{16\frac{1}{4} \text{ in.}}{2\frac{7}{8} \text{ in.}} = 100 \times \frac{65}{4} \times \frac{8}{23} = 565.22$ yards, or a ratio of 5.65 to 1.

Sample Q, Fig. 92, is typical of a high class unfinished terry fabric. It is made from 2-fold white cotton yarns, there being 48 threads per inch of warp and 36 picks per inch of filling. The relative lengths of cloth, ground warp and pile warp, may be calculated from the facts that—

(a) A ground thread withdrawn from a 4-inch length of cloth measures 4⅛ inches.

(b) A pile thread withdrawn from the same 4-inch length of cloth measures 17¾ inches.

$100 \text{ yards} \times \frac{4\frac{1}{8} \text{ ins.}}{4 \text{ ins.}} = 100 \times \frac{33}{8} \times \frac{1}{4} = 103\frac{1}{8}$ yards of ground warp to weave 100 yards of cloth.

$100 \text{ yards} \times \frac{17\frac{3}{4} \text{ ins.}}{4 \text{ ins.}} = 100 \times \frac{71}{4} \times \frac{1}{4} = 443\frac{3}{4}$ yards of pile warp to weave 100 yards of cloth.

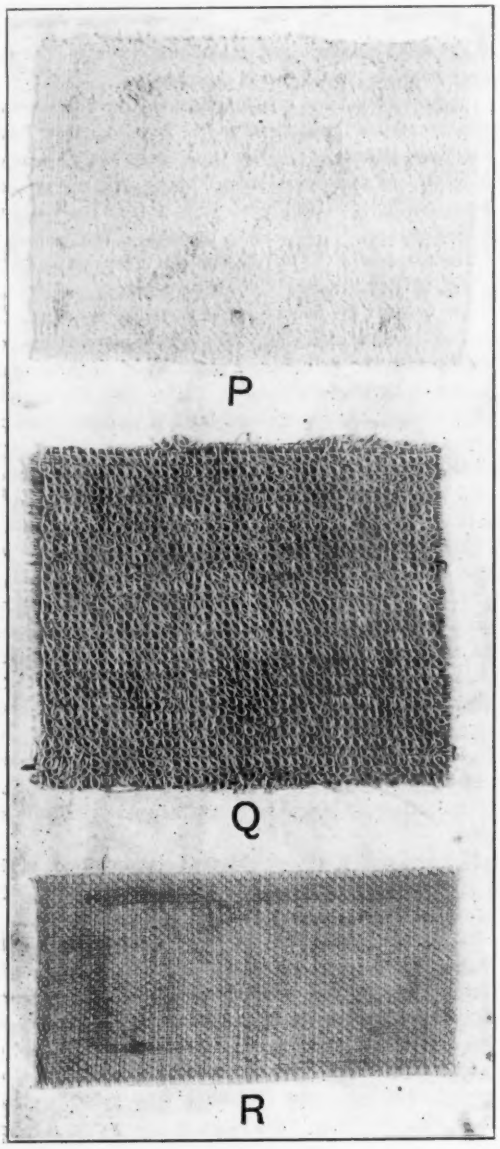



FIG. 92.

Terry towels frequently have more or less elaborate end borders accompanied in many cases by fringes. In the simplest cases the end border is formed by throwing the terry motion out of action by means of a special handle, and producing cloth in the ordinary manner. In other words, all the picks of the terry weave are fast picks. Sample R, Fig. 92, shows the style of fabric thus produced. It was woven from the same warp as the sample Q, but with bleached linen filling in place of the 2-fold cotton above mentioned.

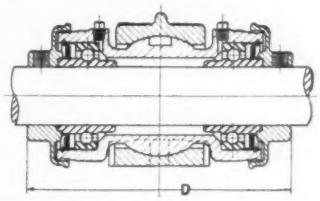
Three-pick terry cloths are by far the most largely employed for toweling. When made from single cotton yarns, there may be from 48 to 56 threads per inch of 12s to 16s cotton, and from 36 to 50 picks per inch of 12s to 16s filling. When made from linen yarns, a good quality toweling is produced from 40s lea ground warp, 20s lea pile warp, and 45s lea filling, all boiled yarns. The warp in such a case would be set about 60 threads per inch. The pile warp would be 3 to 3½ times the length of the cloth, and colored yarns, if used, would be of 2-fold cotton. Many terry fabrics are beyond the ranges here mentioned. The extreme limits of the ratio of pile warp length to cloth length are about 3 to 1 minimum and 9 to 1 maximum.

(*To be continued.*)

## Extra Dust Seal for Hanger Boxes.

Under conditions where there is an unusually large amount of dirt or dust the Fafnir Bearing Co., New Britain, Conn., offers the new extra dust seal shown in the accompanying cut. This seal is furnished with the hanger boxes and single or double pillow blocks at only a slight increase of price over the standard application.

The design as illustrated is practically self-explanatory. The extra seal is merely an extension on the self-locking



collar, enclosing the end of the box and fitting over the corners so as to keep the dirt from working down. The corners of the box are cut down and have a ridge so that the seal closes down around them snugly, the ridge stopping any dirt. Since this seal, of course, revolves with the collar and shaft, it tends to throw the dirt out by centrifugal force, making a practically dust-proof enclosure.

# Georgia Operating Executives Convene

A representative gathering of Georgia mill men, with a welcome sprinkling of visitors from adjoining states, met in Atlanta on Wednesday, March 18th, for the Spring meeting of the Textile Operating Executives of Georgia. The meeting was held at the new Henry Grady Hotel. It consisted of a morning session, a "Dutch" luncheon, and an afternoon session. Carding and spinning questions were discussed.

The attendance was by far the largest in the history of this young association, and the interest manifested on the part of all present resulted in a beneficial discussion. Especial mention is to be made of the two chairmen in charge of the discussions, who handled the questions in a manner that was efficient and productive of participation by a large number of those present. They were aided greatly in their preparation by a generous response on the part of the mill men in answering the printed questionnaire mailed out for reply previous to the meeting.

William W. Arnold, Jr., general superintendent of the Manchester (Ga.) Cotton Mills, the Milstead (Ga.) Mfg. Co., and the Hillside Cotton Mills, Unity Cotton Mills, and Unity Spinning Mills, at LaGrange, Ga., who is general chairman of the association, presided at the sessions. George A. Franklin, general superintendent of the Sibley Mfg. Co., Enterprise Mfg. Co., and Augusta Factory, Augusta, Ga., was chairman in charge of the morning discussion on carding. Frank S. Dennis, division manager and superintendent, Consolidated Textile Corporation, LaFayette, Ga., conducted the discussion on spinning at the afternoon session.

The morning session was called to order by Mr. Arnold, and the opening prayer was made by Frank K. Petrea, superintendent, the Swift Mfg. Co., after which Mr. Arnold made a few remarks, reminding the men that just as the benefits to come out of the meeting would be effective to individuals, so must each individual put something into it. He expressed the members' pleasure at having the visitors present, also commending the discussion committee on the manner in which they had planned the meeting.

Mr. Arnold then turned the meeting over to Mr. Franklin, who opened the dscussion on carding, by presenting the question from the questionnaire—"What is the best method for conditioning cotton laps in the picker room?" He pointed out there is a diversity of opinion on this subject, some men preferring to age the cotton, some wanting to dry it out, and others advocating the use of humidifiers in the picker room.

"We do not use humidifiers in the picker room at the present time," responded R. M. Matthews, superintendent, Peerless Cotton Mills, Thomaston, Ga. "Our cotton is sucked to the opening room through a conveyor and from there on to our automatic distributing system which carries it into the hoppers. We only use two processes of picking, a breaker lapper and a finisher. We have no humidifiers there at this time."

"Do you think that opening the cotton and allowing it to age is better than humidifiers?" asked Mr. Franklin. "Whether we think so or not, we are doing it now," replied Mr. Matthews. "We use compressed cotton, and we try to open enough twenty-four hours ahead to allow all the expansion possible before we put it into the machines."

Here Mr. Franklin stated that he understood some of the mills had a new method of conditioning cotton—e.g., by means of spraying oil on the stock—and asked for experiences from any who had experimented with this practice.

J. Wheeler Mears, Sr., superintendent of the Monroe Cotton Mills, Monroe, Ga., was the first to respond. "We tear the bales up and shake them up in a pile and let them stand as long as possible," he began, "depending upon conditions. We would like to mix up a week's run ahead, if possible.

"We are spraying our cotton with oil," he continued. "We spray it in the hopper and have heads in there and use air at low pressure. In starting it we used atomizers and air under pressure, but found that would not work as the oil would get out all over the room.

"This practice has a tendency to make the fibers parallel, and increases the breaking strength; it breaks from four to six pounds greater. All said and done, we like it very well so far; of course we do not know what we are going to run into later on, but up to this time it has been very satisfactory."

"Does it reduce the fly?" asked Mr. Franklin.

"Yes, it does," was Mr. Mear's answer.

"Do you get the same amount of moisture in it?"

"Yes," said Mr. Mears. "In fact, I believe you could do away with the humidifiers, eliminate them, because you take the static electricity out with the oil." He explained the relief of having a streak of oil behind the feed rolls on cold mornings to cut this out.

"Does it clean the cotton as well?" was next asked.

"I have noticed no appreciable difference," said Mr. Mears.

"Well, how about goods dyed with sulphur colors; what effect would the oil have there?" Mr. Franklin asked.

"We do not do dyeing," responded Mr. Mears, "but I went into that thoroughly. I went to a mill where they had been using it about a year, and they were using all kinds of colors and had tested it out. I was anxious about that. I didn't want to run into any trouble, but I found there was absolutely no trouble. There is an oil made for this purpose that will mix with water, and emulsify readily. The people who make the oil guarantee results. We like it, and unless something unfortunate happens, we will stick to it."

"Do you find it affects the card clothing?" asked John H. Howarth, assistant superintendent, Lanett Mill. "Does it gum up the card clothing?"

"Well, now," said Mr. Mears, "I want to say this is a proposition that must be approached with a great deal of judgment. In the start it gummed up the clothing because we were putting on as much again as we ought to have. I know some mills threw it out on this idea, but we got over it and started all over again. It did give us trouble to begin with, but you know the fellow who gets there is the fellow who overcomes. He must not throw up his hands and give up. If you put too much oil on it will cause trouble."

"What percentage of oil do you use?" asked Mr. Howarth.

"I would say about ⅞ to 1 per cent," responded Mr. Mears.

"Where do you put it on?"

"In the hoppers," replied Mr. Mears, "with an automatic sprinkler pump arrangement."

"Mr. Mears made a broad statement there," commented Charles R. Brumby, superintendent, Cedartown (Ga.) Cotton and Export Co., "saying it increased his breaking strength four to six pounds."

"It may be broad," replied Mr. Mears. "But it will do it."

"And he said that the sulphur direct dye would not affect it?" asked Mr. Dennis, of LaFayette. "That is what I understood," said Mr. Franklin. "If you sent a piece of goods to a sulphur dye plant would the oil affect the sulphur dyeing?" he asked Mr. Mears. "We are assured by the makers of the oil that it will not do this," was the reply.

T. R. Lovern, superintendent, McIntosh Mills, Newnan, Ga., was the next to give his experience in connection with this practice. He said he used it in the manner described by Mr. Mears, and that he had had it in for about a year and a half.

"Do any of your goods go to a sulphur dye plant when they leave your mill?" asked Mr. Franklin. "No,"said Mr. Lovern, "they are dyed in the raw stock, before they leave the mill." They have no trouble with it gumming the card clothing, he added.

"You use the same amount as Mr. Mears, do you not?" asked Mr. Franklin.

"Yes," replied Mr. Lovern. "We have found that as long as we stay under one per cent we are all right. It increased our breaking strength about three or four pounds."

"What about the cleanliness of the work?" asked the chairman.

"It is as clean as it was before," said Mr. Lovern. "There was no especial difference."

"What about the fly?"

"There is considerably less fly, less good cotton that goes into strips and fly and motes," responded Mr. Lovern.

"Well, where did you get this idea about the oil," interspersed W. H. Epps, superintendent of the Jefferson (Ga.) Mills. "It's something new on me. How much did it increase your production?"

"I didn't notice that part of it," said Mr. Lovern.

"Does it weight your goods?"

"Well, you get the weight of the oil."

"Do you have the same amount of moisture in the goods that you did before you began using the oil?" the chairman asked.

"I do not know; we haven't tested for that," replied Mr. Lovern, "but I think there would be no difference, as there is not enough oil on it to make that difference."

Mr. Brumby concurred in the statement of Mr. Epps—that he was hearing about it for the first time—and still referred to the increase in breaking strength mentioned by Mr. Mears. "I'll give the man a contract today if he can increase my breaking strength *two* pounds on 30s/2 yarn," he declared.

"Speaking about the oil spraying system," said James Oates, overseer of carding at the Griffin (Ga.) Manufacturing Company, "we first put in one machine, and we spray black, sulphur black, and other colors. We have made tests and find that we do not affect the goods, and that we get out the same amount of droppings and foreign matter, and that we effected a saving in stock of about one-half of one per cent in the picker. We find that no dust, leafy stock or motes pass on through. We are putting in one pound of oil to one hundred pounds of cotton. We found that on the card strips the amount of good fiber was greatly decreased. We found that we saved thousands and thousands of fibers that would go on into the goods to be sold at the price of goods instead of at the price of strips. We found on the front of the card and the back of the card that we got out just as much motes, dirt, leaf, etc., that we did before.

"After making this test for three weeks I asked the superintendent to notice it, and I questioned the boss spinner as to its running in the spinning room. We found that we had less breakage on the slubber. I had the superintendent and the general manager at the slubber on the test, and we stood and watched this run for a number of minutes. After we had seen the effect of the oil we recommended that we put it on permanently. I had information direct from the boss spinner that it runs better, and it draws better. I believe that it absorbs just as much humidity. Our weights are easier to hold since than before.

William W. Arnold, Jr., General Chairman.

"I believe that cotton manufacturing today is in its infancy. We are living and learning and we find every once in a while that some fellow invents something that is all right, and any of you gentlemen who have not tried out this oil on raw stock I would advise to do so. I believe you will be more than pleased and more than repaid."

"I would like to ask, Mr. Oates, if you are making a piece of yarn and getting a perfect piece of yarn by cleaning out the waste and then put something back into it, would it not make an inferior product?" asked D. G. Reid, superintendent, New England Southern Mills, Hogansville, Ga.

"Ordinarily," said Mr. Oates, "you knock out good fiber along with the waste. I do not believe you will retain any fibers that will injure the yarn, but you will hold a lot of good fibers."

"Well, it seems to me that when you take waste out of yarn and go ahead and put in a percentage of it you make an inferior yarn," said Mr. Reid.

"Wouldn't the fact that he gets an increased breaking strength refute that?" asked Mr. Franklin.

"But why can't you get it with humidifiers?" asked Mr. Reid.

"That brings up still another point," replied Mr. Franklin. "I might advocate conditioning cotton in the picker room by humidifiers, and some of you fellows would come right back at me and tell me that dry cotton cleans better than wet cotton, and I would sit right down and say nothing. But as a matter of fact I believe if you had four per cent humidity in the picker room and increased it to eight per cent, that you couldn't tell the difference in the cleaning of it. I thought about humidifiers and then I ran up against the statement that you cannot humidify a picker room because of the enormous draft of air passing through the picker not allowing you to have a uniform humidity. We have used some humidifiers in front of the finishers, and we think we get a firmer lap there, and never have any sagging at the cards. We think that it improves it considerably."

Henry D. Martin, superintendent of the Griffin Manufacturing Company, Griffin, Ga., next spoke with reference to spraying the cotton with oil, saying, "I was rather surprised to find that the use of this practice was becoming so general. I was under the impression that we were the only mill that was doing it, but I found last night that several mills were already trying it, and since it is fast becoming public property, I do not mind telling what I know about it.

"A friend of mine came to the mill some months ago and said, in an undertone, 'Why don't you spray that raw cotton with oil?' I didn't understand, and he went on to tell me about it. As soon as he left the mill I got in my car and went to that mill—Mr. Lovern's mill—and after we had been talking he said his overseers had threatened to leave him if he stopped using the oil, and I thought that spoke pretty well for it. I looked this plant over and I have never seen a better running mill in my life (and I have seen many). I saw it on all colors, and he showed me it would run on bleached stock.

"I had my overseer of carding wth me, and when we got back we bought one of these and tried it on one machine, and now we have every machine but one equipped, and I have an order in for that.

"I will not discuss card clothing, etc., but I do know that we have a mill that is running as well as any mill can run, no dust, and everybody is better satisfied.

"I feel that we are all babies in this business, but so far as I know now I would not run a mill without this oil, white or colored work. We are on the eve of learning new things. This is not only a matter of humidifying cotton, but it is a matter of supplying somewhat of a food, just like you oil or grease a belt, or put something on your hair, or like the women like to put something on their faces. Cotton needs something besides water and heat and those things. I do know that the woolen mills have oiled their stock and I have also noticed that when they run cotton or cotton waste they do not stop so far as the oil is concerned. The woolen mills use a great deal of oil. I remember putting in a cost system in a woolen mill once, and when I got to the item of oil I wondered why they were using so much oil.

"With reference to the amount of oil to be used, from what knowledge I have been able to obtain I should say that anything in excess of one per cent might be unnecessary. I should say one per cent would be the limit."

"What numbers of yarn? Is the yarn black or white stock?" asked Mr. Brumby.

"We run all colors of the rainbow; numbers ranging from 5s to 25s," said Mr. Martin.

"Mr. Mears runs white work, about 24s," said Mr. Franklin.

"Will it have any effect on cord fabric and other goods going to the rubber trade? Will it affect the adherence of the rubber?" asked W. D. Massey, of Thomaston, Ga. The reply was that it would not.

Mr. Epps wanted to know why the representative of the concern had not been to see him. Frank Heymer, superintendent of the Bradley Manufacturing Company, Columbus, Ga., who is using the oil, stated that he believed "the people want to make sure that it is all right before they go ahead. I am experimenting on it now. I am on my fourth barrel, on colored stock. Their representative stayed with us a while and left it with the understanding that we were putting on one per cent on all colors, sulphur, basic, direct, and indigo. When we started off we found that it would run fine until it left the drawing, but on the slubbers we found we had trouble with it licking up. I would like to know if there is anyone who has experienced the same trouble."

"No trouble at all," said Mr. Oates.

"I began to experiment with reducing the amount of oil," continued Mr. Heymer. "We put it in the hopper, with an automatic atomizer on each hopper and a certain stroke will deliver a certain amount of oil. Usually, on dyed raw cotton, you take the natural wax out of the fiber and it makes it harder to run, but during all this cold weather I have not experienced any trouble whatever. We used to have to put live steam in the rooms.

"I use it on every color, and we have never lost one end on the card. That convinced me that there was some merit to the oil. Mr. Martin says they have been using it on wool. They do that because they decrease the wool in dyeing and then you have to put it back in.

"We are making hosiery yarns with loose twist, and that is different from warp yarns, and on the creel boards we used to have a great deal of loose fly, but since we have used that oil, we hardly find any. Our spinners are satisfied and they can sit in the alleys now. Where they used to run four and five sides they are running six and eight sides now. Whether that is due to the oil or not I am not prepared to say, but it has convinced me that it is going to become one of the most necessary things in cotton manufacturing. We have had it on trial for thirty days and we are going to buy it.

"But you have to experiment with the amount of oil to suit the local conditions. I am not able to talk about the breaking strength, as we do not use yarns for weaving, but it has made a rounder yarn and an evener yarn.

R. Bigham Smith, sales representative for the Borne, Scrymser Company, 17 Battery Place, New York City, who produce Breton Minerol E for this purpose, was called upon for a statement, but said he should prefer to let the mill men who had experimented with the proposition from a practical standpoint discuss the matter.

Mr. Franklin again raised the point of sulphur dyeing, saying that a large percentage of his goods are sulphur-dyed after they leave his plant, and he was skeptical on that account. He said he would experiment, however, by dabbing a piece of cloth with the oil and sending it to the finishing plant to determine any possible effects.

"I suppose I was the first one in this section to use this," said Mr. Lovern, "and so long as you stay under one per cent, I don't believe there is any danger from any cause. It will take the place of humidifiers, you will not find any static electricity. In fact I ran the mill two weeks last summer without humidifiers. You will not have laps sagging, and it will polish the card clothing. There will be less waste and fly in the room, and it will strengthen the yarn. There are several other things I cannot think of now, but I do know there is no danger in putting it on goods to be sulphur dyed."

"Did it increase the amount of strips?" was asked.

"No, sir, I made a test on that and I found the strips to be dirtier where the oil was used," replied Mr. Lovern. "We card about 60 pounds a card a day, and it must be especially clean, and it was cleaner afterwards than it was before. The great percentage of card strips is usually good fiber, and I hold it in there. It parallelizes the fibers and has the same effect as humidity, except that humidity will not stay put. If you get the oil in there right you can open the windows and run without humidity."

"When you fill one hopper and automatically change to the next hopper, is there any danger of it running excess oil in the first hopper before you get back to it?" asked A. J. Todd, overseer carding, Unity Cotton Mills, LaGrange. "No, sir," said Mr. Heymer. "It will stop automatically as it is connected with the feed."

In concluding the discussion on this subject, Mr. Oates brought out the further point that by reducing the amount of dust in the room, the health conditions were improved by the use of the oil. He said it is as clear inside of his room as it is on the outside.

The next question read from the questionnaire was—"Is it injurious to card sliver if cans are allowed to run too full?" Mr. Franklin reported that unanimous opinion was that it is injurious, as the sliver becomes stretched, and asked for some remedy for this condition. J. A. Sorrells, superintendent, Gainesville Cotton Mills, Gainesville, Ga., was the only one to suggest a remedy, saying that "I worked up a little trick that helped me out. It is on the tongue of the coiler head where the trumpet is, right underneath. I put a set screw and locknut to rest against the auxiliary calender roll. Originally there was a little nub there to rest on. I set it down just close enough to allow just a little bit of variation in the thickness of the sliver, and when it gets a little extra thickness it breaks the end down and when the can gets up to where it presses the coiler it breaks the end down and stops."

The relative merit of long and short drafts on cards was next taken up, but before going into this Mr. Franklin explained just what was meant by "long" and "short" draft, stating that the committee had considered anything below 100 as "short" and above 100 as "long." He then asked those who had run over 100 draft to tell the meeting whether they thought there was any advantage in so doing.

"We run a draft of 125," said Mr. Dennis, "and we think there is an advantage in that you can use a heavier lap, which has the same effect of increasing the capacity of the pickers, and if you can reduce the beater speed you increase the strength of the yarn. Our breaking strength is a little bit better than it was before we changed from 92 card draft. We were making a 45-grain sliver from a 10-ounce lap, and we changed to a 14-ounce lap, making the 45-grain sliver."

B. R. Burnham, superintendent, Whitney (S. C.) Manufacturing Company, stated that above 30s he runs a long draft of 110, and on numbers under 30s he runs a shorter draft. "According to the Cotton Research Company," he said, "numbers from 30s down run better with from 95 to 100 draft, and 30s up with longer draft. You will have to take that for what it is worth, however. We have found that by heavying up on the lap we get a greater carding action between the flats and the cylinder and we do get better results in evenness and to some extent in breaking strength."

"We spin from 6s to 13s, and I increased the draft from 100 to 120, and I do not see any difference in breaking strength," reported Mr. Reid. This was on warp yarn.

"Has anyone found that a longer draft decreased the breaking strength?" asked Mr. Franklin.

Mr. Todd said that he raised the card draft from 96 to 120, on 6s yarn, and his breaking strength went down about eight per cent.

Mr. Burnham said that on 10s to 26s he runs a card draft of 95, finding that everything over 100 made the breaking strength go down in proportion.

"Then the idea is that on coarse yarns a short draft is better on the cards, and on finer yarns the longer drafts give better results," said Mr. Franklin in summing up opinion on this question.

The question next brought up was with regard to four-roll drafting on slubbers and speeders, and Chairman Franklin called on Mr. Burnham, of Whitney, for experience in this connection.

"I do not know anyone who is thoroughly competent to speak on four-roll drafting," said Mr. Burnham in responding, "for that is something that is fairly new to us. The idea was evolved by F. P. Sheldon & Son, of Providence, and we were one of the first mills—and I understand the John P. King mill in Augusta was another—to try it in actual use in the mill. Saco-Lowell Shops built the frames that we use.

"Sheldon's argument was that so long as you do not hurt your evenness from decreasing doublings you could draft anything you wanted to on any frame—and I believe there is some logic in that argument.

"The idea of the four-roll drafting was to cut out the intermediates and get the same results with the slubber and speeder. The first four-roll drafting that we got and put in was a slubber, very imperfect. We found that the drafts were not progressive, and we further found on experiment that they should be progressive so we changed the gears on it and put on a drawing progression, making our change

gears to fit.

"On that frame we can draft from about eight to fifteen on the slubber, and on the speeder we can draft about eight to fifteen, and get a great deal more variation in draft by changing the front roll gear and changing the range of change gears. On the last speeder that Saco-Lowell have sent out they have a draft between the back and third rolls of 2.39; between the third and second a draft of 3.09; which is not supposed to be and is not progressive. It will work on speeders but not on slubbers. We attribute that to the fact that the stock entering the fourth or back roll on the slubber is so much harder to draft if you put draft there you have the bulk of the stock to hold and the leather covered rolls will slip and there will be very little under draft on the top, and you will get standard draft on the bottom, where it engages with the steel roll. The last draft, between the second and front rolls, is 1.29. We have not had that long enough to know whether it is ideal.

"We have made a great number of exhaustive tests, and Sheldon's man Cooper has gone over these tests for us and he could not increase our breaking strength over the three 3-roll processes, and he could not increase our evenness over the three 3-roll processes, but he did equal it. He tried it out and went over the 3-roll process and could not make any improvement.

"So I cannot make any claim for breaking strength for the four-roll drafting, but you can cut out the intermediates.

"One thing we are doing—we are making 24s yarn, carded, on a four-roll slubber and three-roll intermediate, sending it direct to the spinning frame, 3.00-hank roving, making 24s out of 1 1/16th-inch cotton, No. 1 flange ring, 5/8 bobbin, filling wind, single roving. I tell you that because it speaks well for the four-roll drafting."

"Do you get a breaking strength anywhere near the standard?" asked Mr. Franklin.

"Our breaking strength is about 68 or 70 pounds. That may be good or bad," said Mr. Burnham.

"That's pretty good on local cotton," said Mr. Franklin.

E. R. Lehman, assistant superintendent, The Dixie Cotton Mills, LaGrange, Ga., asked Mr. Burnham if his frames on 24s were running a standard front roll speed, and the reply was in the affirmative.

"Did they have to put on heavier weights in weighting the rolls?" asked Mr. Arnold.

"On the four-roll weighting, we did not use the same weights," replied Mr. Burnham. "On the slubber, on the front roll there is a hook which comes over and a ten-pound weight hangs on it; the middle rolls are weighted by twenty pounds evenly distributed by a saddle; the back rolls by a twelve-pound weight on a hook."

"Did you find it necessary to put in trumpets between the two pairs of rolls?" asked Mr. Martin. "Several years ago I operated some spinning frames with four rolls, and we found it necessary to put trumpets between the two pairs of rolls, split at the top so the rovings could be laid in."

"We did not find that necessary," answered Mr. Burnham, "but we did have to put under-clearers on the fourth roll. It may be a little aside from your question, but that just came to mind." These were not revolving clearers, he said, in response to a question.

"Did you change the setting of the rolls?" was the next question.

Mr. Burnham replied: "On our slubbers, from the fourth to the third roll is 1½ inches (this is on inch cotton that runs nearer 7/8), with 65-grain sliver coming in making 8.80 hank roving; third to second, 1⅜ inches; second to front, 1¼ inches. This is a change from the standard on three-roll frames."

"Did you have old frames changed to the four-roll drafting?" asked Mr. Franklin.

"On the speeders we had old frames," replied Mr. Burnham, "and it is very practical and very easy to be done. The slubbers we are buying new."

"But it *is* possible to put four-roll drafting on old frames?"

"Yes, sir, the shops supply everything," answered Mr. Burnham.

W. M. Langley, superintendent of Abbeville (S. C.) Cotton Mills, stated that he had applied the system to old frames and that it works very satisfactorily.

There being no further questions on this, Mr. Franklin directed the discussion to the question—"What is the best relative surface speed between the grinding roll and the clothing being ground?" In presenting the question Mr. Franklin stated that it appeared to be a new one to most of the men, and asked Mr. Dennis, who originated the question, to give his idea on the subject.

Mr. Dennis said that when he asked the question, he was preparing to make some tests, but had not received some equipment that had been ordered. Since that time, however, "we have got the slow motion attachment, which reduces the speed of the cylinder to four revolutions per minute while grinding. I understand that it is more or less standard practice in the English mills to use this slow motion grinding. So far it looks to be all right. The strips appear to be a little bit dirtier. We have been trying it for only about two weeks.

"Now the general machine shop practice is that in grinding the surface on a piece of steel—take the feed plate on a card, for instance—a very slow speed is used on the part that is being finished, and a very high speed on the roll that is doing the grinding. In shops where they do micrometer work they use a very slow speed; they claim that when you destroy that relationship you change from a cutting to a scratching action, and cannot get a finish on the surface ground if you destroy that relationship."

"What you did, then, is to reduce the cylinder to four revolutions per minute, and leave the grinding roll at the same speed?" asked Mr. Franklin.

"Yes, sir," was the reply.

"How long do you keep the grinding roll on there?" asked Mr. Reid.

"Each time we are going to reduce the grinding time one hour," replied Mr. Dennis, "until we get it down to five."

Mr. Dennis replied to further questions saying that it is a traverse grinder that he uses, and that it makes three traverses a minute. Mr. Massey said he had tried the same method with a drum grinder and did not get good results.

"About ten years ago I reduced the pulley on the end of the grinding roll and speeded up the traverse, not bothering anything else, and got good results," said Mr. Sorrells. At present the surface speed of his cylinders is 26,389 feet per minute, and of his grinding rolls, 14,702 feet per minute. On the doffer the surface speed is 22,902, with of

course the same speed on the grinding roll. This is about 20 per cent higher than before the change, he said.

The next question was—"What is the best method of stripping cards, that is, how often, and should a roller brush be used with vacuum stripper?"

Mr. Franklin reported that most of the answers to the questionnaire indicated a rather general use of the roller brush, so he asked how often it is used. "Mr. Senn, at the Enterprise mill, doesn't use a roller brush," he said, "but at another of our mills we use it once a week, as we run coarse numbers and get heavier carding over there."

Mr. Brumby said that while he uses the roller brush, he does not believe it is necessary to do so, where a vacuum stripper is used.

"I find it absolutely necessary in our work to use it once a week," said Mr. Heymer. "On our class of work we have a certain amount of dirt that stays in the card clothing which we can not get out with the vacuum stripper and we have to use a roller brush once a week, and whenever we go from a dark to a light color in order not to have any specks in the light color."

"You are on colored work and I run white work altogether," said Mr. Brumby.

Another member reported that on the Tatum English card he uses the vacuum stripper without the roller brush.

Mr. Dennis says he gets best results by burnishing the cylinder and doffer for a half hour after grinding. He says he does not need to use the roller brush. "When a card needs burnishing it needs it right after grinding and it needs to be completely burnished," he said, explaining that if burrs remain on the points of the wire they will keep the foreign matter from coming out.

"I have 176 cards that have not been brushed in ten years," said Mr. Brumby.

"I card 185 pounds a day and brush out twice a week," said Mr. Epps. "If you are carding light you can get by with it, but if you card heavy you'll go crazy if you don't do it."

Five are stripping twice a day with a vacuum stripper, and eight are stripping more than twice, according to a show of hands in response to a question from Mr. Franklin. "I find by stripping twice a day I get more even yarn," one man said.

Mr. Arnold said that the mills selling their strips will find a big variation in the price of vacuum strips and the price of roller strips. "There is a 25 or 30 per cent difference in the value," he said, "the vacuum strips running cheaper than the others."

"Has anyone tried getting along without stripping?" asked Mr. Martin. "I heard of a manufacturer who didn't strip but once every three weeks."

"He stopped his cards and didn't run them," was the comment of Mr. Epps.

Mr. Franklin next brought up the question—"What is the remedy for uneven tension on drawing sliver with metallic rolls?"—explaining it by saying that the condition referred to was where one end out of six on the drawing would run slack. Some, he said, attribute the difficulty to different size collars, and the usual practice seems to be to swap the rolls around until they all run the same tension.

Mr. Burnham said the best practice is to renew the rolls. However, he said, oftentimes a section man will "prick-punch" the collars to raise them and even the tension. "Of course," he continued, "this is a suicidal policy, but I have got up a little scheme of an eccentric screw to go through the front stand and between the upper and lower metallic rolls, resting just underneath the bearing of the top roll, with a lock nut on the outside of the stand. By putting a wrench on that you can raise the mesh and tighten the collars."

"We had about the same experience with section men punching the steel rolls to make the ends run right," said Mr. Lehmann, "and that is the way we remedied it." He added that sometimes there is a variation in new rolls.

"We have new frames," said another man, "and I noticed some slack ends, right after the section man cleaned the drawing. He took the rolls out to clean them and got them mixed. When this occurred I sent him back and let him fit the rolls back like they should go."

W. H. Hames, overseer of carding, and J. C. Edwards, overseer of spinning, at the Anchor Duck Mills, Rome, Ga., reported unfavorably on the eccentric, saying they had tried it but had abandoned it. "It works all right until the stuff gets to the spinning," they said.

In addition to what had been said about sagging ends on drawing, Mr. Oates expressed it as his opinion that one seat of the trouble is in the picker room. He says he makes laps "as good as the Lord will let me make them" and that this helps eliminate the sagging on the drawing. Of course the best thing is to renew the rolls, he said, and the next best thing is to have even sliver from the card.

Mr. Reid said he remedies the trouble by swapping rolls around.

"In cleaning drawing rolls," said Mr. Edwards, "you are liable to get them mixed and you might mark the stands and rolls and keep them in the right place that way."

Mr. Heymer asked if anyone had tried taking worn drawing rolls "and putting them in a lathe and taking a small file and filing the grooves out and polishing them up."

"We went through that proposition thoroughly," said D. W. Anderson, manager, Pacolet Mfg. Co., New Holland, Ga. "I took it up with the Indian Orchard people and they said that the only remedy was new rolls."

With reference to sagging ends, Mr. Anderson pointed out that "another thing that will cause sagging is for the trumpets to be worn unevenly. The holes become worn and if you will take a gauge you will find that drawing that has run for fifteen years will have different size trumpets. We have found it a very good idea to buy new trumpets—they do not cost much—and then ream them all out to the same size."

Regarding the filing of flutes, Mr. Burnham expressed it as his opinion that this should be done in a place fully equipped for such work. He said he did not believe the average cotton mill carries the proper abrasives to get the correct polish on the roll.

"What do you consider the proper speed for front roll on drawing?" was the question from Mr. Franklin which began the next discussion. This question naturally brought in the subject of one-process drawing, and in presenting the question Mr. Franklin stated that, "it has been my opinion for a long time, and is yet, that in a great many mills who have gone to one process of drawing and have received benefits, the advantage has come from the reduced speed of the front roll, instead of the elimination of a process. Has anyone kept up the speed in changing and

got the same results?"

V. J. Thompson, of the Manchester (Ga.) Cotton Mills, stated they had gone to one process of drawing, but had reduced the speed considerably, and had secured mighty good results.

"Do you think it was caused by cutting out the process, or reducing the speed?" asked Mr. Franklin.

"Well, both of them had something to do with it," replied Mr. Thompson.

"We reduced our speed to about 275 or 290 when we cut out one process, and we get the work through easier and get just as good results, and we also cut out one-third of the help," said D. G. Reid, of Hogansville.

"Mr. Reid, if you were building a cotton mill and could put in enough drawing to put in two processes at a low speed, would you still use just one process?" asked Mr. Franklin.

"No, sir!" replied Mr. Reid.

"That's been my idea," said Mr. Franklin, "that it is the reduction in speed and not the elimination of one process that helps you fellows out."

"I have been running one process of drawing for eighteen months. We cut the speed down from 375 to 196 r.p.m., and we get just as even a yarn as we did before, and we get a better breaking strength, and I run about half the labor," said W. L. Phillips, of Social Circle.

"What would you do if you had enough drawing to make two processes at that speed?" asked the chairman.

"I would use one process and buy the new evener drawing," replied Mr. Phillips. "We took one drawing and weighed it yard for yard and then we took the six ends and doubled them back and weighed them yard for yard and there was no difference in the variation from yard to yard."

"But don't you cut out several thousand doublings?" asked Mr. Franklin. "Yes, that is true," agreed Mr. Phillips, "but we think we haven't suffered by it."

"I have cut the speed," said Mr. Arnold, "but our observation is that if you can keep the variation in weights to what you want it, the least you can handle it in the drawing, the better. The more you draw it the more you comb out the natural twist of the cotton. It is the same principle as trying to run comber noils, you know how slick they are. You can tell the difference in the slickness of the staple. As long as you can keep the evenness to keep the yarn numbers it looks to me that it is better. We had to heavy up on the weights on the slubber to make it run evenly. We took five teeth of twist out on the slubber and the slubbers run better and we get an increase in production due to taking out twist, and we have less ends down. But you must increase the weights on the rolls on the slubbers in order to make it draw smoother."

"What is your idea of proper speed?" asked Mr. Franklin.

"About 200," replied the general chairman, "as I don't think it should be too fast; if you can get enough drawing to keep up with that speed it is best."

"My doublings now are about 2,204," said Mr. Howarth. "If I cut out one process of drawing it cuts my doublings down to 304. Will that benefit me any?"

"That is just the point I am trying to bring out," said Mr. Franklin. "The first thing these men do is to reduce the speed and improve the breaking strength and the running of the work, but I have not found anybody who has kept the speed up."

"We kept the speed up and got no benefit," reported Mr. Burnham.

"My observation is that I have received no benefit from one process of drawing, on 20s and upward," said Mr. Martin. "Personally, I believe 200 is too slow for even one process. I believe drawing should run up to 400."

"On one process drawing on 22s the variation in the spinning room was something awful," said Mr. Lehman, "but when we got the speed down to 200 on the same drawing frame the breaking strength did increase about ten pounds. We cut from 350 to 200."

"I do not think any mill could just cut speed and get results," declared Mr. Arnold. "You have got to get your work coming evenly from preceding processes. I believe you can get results if you will improve this, and cut the speed, and make the changes on the slubbers to take care of the increased wiryness of the stock."

The final question considered under the carding was—"Which is better for the double beater breakers, blade or Kirschner beaters?"

"We get out more stuff there with the blade beater than with the Kirschner beater," reported Mr. Thompson.

"I have the Kirschner beater in every picker in the mill," said Mr. Phillips. "I have the double beater on the breaker and I use the pin beater there. I get more dirt and dust out of my cotton than I did before. I get better running work and cleaner work and I increased my motes at the breaker picker about 80 per cent and decreased the amount of good cotton about 200 per cent. We haven't set a lap back in our picker room since the meeting of carders here one year ago. We are running 22s yarn, with a front roll speed of 148 on warp, with three processes of picking and eveners on the breakers."

"Is there any difference in the speed of the Kirschner and blade beater?" asked Mr. Epps.

"On the Kirschner in the intermediate and finisher we cut the speed from 1,500 to 809. The pin beater in the breaker makes 500 and the Kirschner makes 750," said Mr. Phillips. He added further that he sets the Kirschner as close as he can without striking. He said the 30-inch pin beater in the breaker replaces the Buckley beater. When he ordered a new breaker recently, he said, he specified its coming equipped this way, and it was necessary to correspond with the shops for several months to get it that way, since it was so different from usual practice.

Mr. Newsom, of LaGrange, reported that he had just purchased four breaker pickers with eveners on them. While he has not had an opportunity to run comparative tests, he said, from their performance so far he likes them very much.

This concluded the morning discussion, and Mr. Arnold introduced W. C. Wroe, industrial engineer of the American Mutual Liability Insurance Company, who spoke briefly with reference to the application of the workmen's compensation act in Georgia, and the ways in which the operating executives could assist in holding the rate down, and in a proper execution of the law.

### The Luncheon.

R. M. Matthews, superintendent of the Peerless Cotton Mills, Thomaston, Ga., and a member of the executive committee, acted as toastmaster at the proverbial luncheon, held in the dining room of the hotel following the morning

session. Musical entertainment was furnished by Tucker's Entertainers. The only speaker at the luncheon was Marshall Dilling, of Gastonia, N. C., president of the Southern Textile Association, who brought greetings from the members of that body.

**Discussion on Spinning.**

At the beginning of the afternoon session, General Chairman Arnold spoke briefly with reference to the necessity for obtaining accurate overhead costs, saying that while all mills know their general average cost, the ratio in which the cost is allocated to the finer and coarser numbers is not known, and oftentimes the mill loses money on one construction while making it on another.

"It strikes me in my limited experience," he said, "that only two things are wrong with the textile industry in the South, and those are the high cost of manufacturing and the low selling prices of goods. If we can ever overcome those two things, I think we will all make a little bit better showing. It undoubtedly is a fact, I believe, that we have been over-producing and forcing sales in the past year or two in the textile industry. I think really the mills have done a lot to cut their own throats in the last year or two. Selling agencies want volume, and we want to give it to them, and we give a lot of excuses as to why we run our night lines, and others, when we have not orders to run on, and I think that is a very serious question, worthy of very serious consideration by all of us fellows in the manufacturing end in the next year or two.

"We can probably have influence on our selling agents or representatives by working out individual cost systems, and letting the presidents and managers of the mills know more accurately what the different fabrics and yarns cost. We have an average cost system, and we kind of guess at the fine yarn number, or the low one, or the light weight fabric, and the heavy weight fabric, based on our average cost.

"I think a good many mills are not properly distributing their overhead, and in not properly distributing their overhead, and working out an individual system, they have been fooling themselves, and on a lot of fabrics they make a lot of money, and on others they lose it, and at the end of the year they make a better or poorer showing as the case may be. I thought I would like to get that out of my system. I think we should get up more accurate cost systems instead of using the rule of thumb method, and getting it on an average, and we could furnish this to the executives of the mills and the selling agents, so that they could get a more intelligent idea of what it costs to produce the different fabrics, and make a drive to sell those at legitimate profit.

"I put that out as a suggestion because I think that over-production and mass-production and forced sales have done more to make us sit up nights, and wonder how we are going to come out at the end of the year, than anything else."

Election of a member of the executive committee to succeed Ira B. Grimes, of LaGrange, whose term expired, was held, and Frank S. Dennis, of LaFayette, was selected for this place by unanimous vote. Mr. Dennis will serve for two and one-half years.

Following this business the meeting was turned over to Mr. Dennis as chairman of the spinning committee, and he opened the discussion on this subject with a question regarding the proper circle of traveler and the use of traveler gauges, which was stated as follows: "Have you made any experiments with the different circles of travelers? Do you find it an advantage to use a traveler gauge to determine the circle of the traveler?"

The chairman opened the discussion by stating it as his experience that difference in the circle of travelers makes a big difference in the results on spinning, and asked for statements in this connection.

"I have found out, like you did, that there is a difference in results caused by difference in circle of the travelers," said Mr. Lehmann. "At one time in our spinning room certain numbers were running bad, and we found that was the reason for it. After we got a traveler gauge and experimented with it and found which was the best circle suited for that grade of work and that flange ring, we settled on that and have not had any trouble since.

"I had a hard time getting a traveler gauge, but finally I borrowed one and had one made from it, and ever since that time we have not had a bit of trouble with the different circles."

It developed in the meeting, as well as in the answers to the questionnaire, that while most of the men recognized the value of having a traveler gauge, very few of them had been able to secure them.

"Suppose you describe your gauge," suggested Mr. Dennis.

"It is a little piece of steel about as long as your finger, the top side being flat," said Mr. Lehmann. "Then it steps up in different circles—mine steps up with a 3/4 circle, and then a 7/8 circle, etc."

"I have never had any experience with traveler gauges but I would like to speak with regard to accustoming ourselves to the use of the gauge," said Mr. Martin. "There are a great many reasons why we should take more interest in this subject. I think you will all agree with me that the traveler is the hardest worked piece of mechanism we have in the mill today. It travels over a race course, which is apparently smooth and even, but those of you who have looked into the matter of rings have found that a large proportion of our rings are not round. You know that the surface is not smooth and even and burnished, but very rough oftentimes, and it makes a big difference whether a traveler is round, whether it is thick or narrow, whether it is large or small circle. It is like that important question of oil—we are all really in school yet when it comes down to the fine points of cotton manufacturing. So while I have never had any experience with the gauge I can speak for the traveler and accustom ourselves to using the gauge more freely than in the past."

"What circle traveler do you use, Mr. Martin?" asked the chairman.

"In our work we find it wise to use a circle 2 on a No. 2 flange," said Mr. Martin.

"We have two answers to the questionnaire here, one saying he uses a 5/8 circle on a No. 1 flange ring, and another an A1 on a No. 2," said Mr. Dennis. "How many others are doing that?" No one indicated he was, but in response to further questioning it appeared that three men present use the 3/4 circle on the No. 1 flange ring. Mr. Edwards said he had tried the A1 on a No. 2 flange, but had changed.

"Every spinner has tried different circles of travelers,"

said Mr. Franklin, "and for one reason or another each spinner prefers some certain number of circle, and they may differ a whole lot. It seems to me that the main thing to know is whether you are getting the traveler you want or not. The traveler makers are reputable concerns all right, and I believe their intentions are good, but everyone in manufacturing makes mistakes. We do and they do. We have traveler gauges. I don't know as I could say where we got them, but if anybody wants a gauge and can't get one, we will loan them ours and let them have some made.

"The help that our gauges have been to us is that sometimes the traveler people will send us mixed travelers. Sometimes the circles are so close together that it is pretty hard to detect. Some mills have a practice of putting them on with a wire about the size of the circle, and they can tell in that way to a certain extent, but the traveler gauge makes you absolutely certain. When we get a mixed shipment and gauge them and tell the traveler people about it, they tell us that 'we are very sorry and if you will ship them back we shall be glad to replace them.' As I have said, the traveler manufacturer has no intention of mixing the travelers, but we all have more or less bad work throughout the plant, and when you get this gauge it puts you in a position to know what circle you are getting. I think every mill should have a traveler gauge."

"I am sure we all appreciate the offer of Mr. Franklin to loan his gauge to anyone who wishes to have one made," said the chairman, "and I am glad he brought out the point that we may think we are getting a certain circle when we are not, and unless we have some way of gauging it we never know whether we really are getting it or not."

"But some of the answers said that they did not think it was necessary to do that. I think it is only fair that we should hear both sides of the question, and I am going to ask someone to bring out that feature of it."

"I made that statement in my answer to the questionnaire," responded J. C. Edwards, of Rome, Ga., "but I did not mean to convey the idea that it wasn't all right to check up on them. But, personally, I don't think I have ever had but one experience in my 23 years in the mill where travelers got mixed that way, and that was about five months ago. I sent them to the traveler man and he made it all right."

"I have made many tests on the proper circle of traveler," said Mr. Phillips, "and I use, on a No. 2 flange ring, an A1 circle traveler, which gives me the best results, and on a No. 1 flange, the ¾ circle gives the best results.

"That is on 22s yarns, but it doesn't matter about the number of the yarn for I have tried it from 40s to 20s. The 2 circle traveler has too much play in it."

Here Mr. Dennis raised the question of whether the rings of one manufacturer would fit into the holder of another manufacturer. It was pointed out that they are more or less interchangeable, but with some slight variation in size.

"Mechanically speaking," asked Mr. Martin, "what is the difference between a No. 2 and a A1 traveler?"

"The A1 traveler is smaller than the No. 2," answered Peter Quinn, of the Draper Corporation. "The No. 2 is much larger than the A1. The No. 2 has a 90 degree pull when on the ring and the A1 has a 45 degree pull."

"They all go back to a master gauge in determining the difference, do they not?" asked Mr. Dennis. "Yes," was the reply.

"I don't think you can use a certain circle for any given size ring, because on new rings you must have a larger circle, and as it wears down you have to take up on the circle," said Mr. Lehmann. "I think it depends on the age of the ring, the length of time it has been worn. On a new ring you should put on a larger circle."

"I have not changed circle of traveler," said Mr. Phillips, "for I do not think it should be changed. After it runs a certain length of time it wears a path for itself in the ring, and when you change a traveler on a ring that has been broken in on a certain circle, you get into trouble. You should stick to a circle and never change."

The next question was—"(a) Which is better from a weaving standpoint on filling, running rail up fast and down slow or up slow and down fast? (b) Which is better from a spinning standpoint when running filling wind for warp?"

There seems to have been some misunderstanding in interpreting this question, said Mr. Dennis, explainings that the first consideration, under "(a)," was, "which is better from the weaving standpoint, leaving the spinning out of consideration. Does the yarn pull off the bobbin any easier and any better one way than the other?"

"I would think from a weaving standpoint that you should run the traverse up fast and down slow," stated John Hampton, overseer of spinning, Fairfax Mill. "If the filling sloughs off at all it will slip from the nose to the quill and not from the quill to the nose. That has been my experience, because filling wound on a quill, if it is going to slip off, will slip off in that manner."

"We run up fast and down slow for the reason that going down slow tends to take the strain off of the yarn," said D. R. Senn, assistant superintendent, Enterprise Manufacturing Co., Augusta, Ga.

"It doesn't seem to make much difference at that plant to run both warp and filling up fast and down slow," added Mr. Franklin, who is general superintendent of the plant, "but we have another plant on coarser numbers where we have to run it down fast and up slow. The boss weaver at the latter plant contends if you run it up slow and down fast it changes quicker at the time, but if you run it the other way it dwells at the top of the quill and makes what we call 'snotty nose' filling. And while the spinner would like to run it the other way, he doesn't do it from the weaver's standpoint."

"If you are running it down slow on filling under 15s," said Mr. Howarth, "the dwell will put two or three rounds of filling on the top and it will slough off in the loom. And it is this dwell at the top that makes some people change from slow down to fast down. But I agree that it is better from a spinning standpoint to run it the other way, because there is more strain on the yarn when you go down fast. Under 12s, down slow will hold the yarn at the top of the quill and it will slough off; down fast will not do this and it will not slough off."

"Is there any difference in the amount of yarn that the weaver must pull off before he threads the shuttle where you run it down slow and down fast?" asked Chairman Dennis.

"When going down slow," said Peter Quinn, "they must pull off 66 inches of yarn, against 22 inches when going down fast. From the spinning standpoint down slow is

(*Continued on page* 603.)

# Buying and Selling Cotton Waste

BY LESLIE CHILDS.

The question of whether or not the inspection and acceptance of a quantity of cotton waste, which was sold by sample, would preclude the buyer from recovering damages for breach of contract of quality, was passed upon in an interesting manner by the New York Supreme Court, in American Waste Company vs. St. Mary, 206 N. Y. S. 316. The facts and circumstances which culminated in the action were, in so far as material here, as follows:

The plaintiff, American Waste Company, entered into an oral contract with the defendant, St. Mary, who was a jobber, for the purchase of 101 bales of cotton waste. The contract was made in Boston, after inspection of a sample, subject to inspection and acceptance at Houston, Texas, where the goods were.

At this time, it seems, the defendant told the president of the plaintiff that he wanted the waste inspected and approved at Houston, that he did not want any aftermath to the transaction, and for that reason he desired the plaintiff to name a representative at Houston to inspect and pass upon the goods.

**Buyer Accepts Cotton Waste.**

Pursuant to this contract the plaintiff communicated with a sampler at Houston, and gave him detailed instructions relative to making the inspection. This agent of the plaintiff made the inspection and reported the goods right and in a merchantable condition. The waste was then shipped, a part of it going to Philadelphia, on plaintiff's orders, and the balance to Boston.

The part that was shipped to Philadelphia proved satisfactory, and no complaint was made of it. The balance of the goods were in due time sold to a third party who in turn sold them to another party. The latter opened the bales and declined to accept them on the ground that they were "false packed," and contained caked and wet blocks of stock. These purchasers had recourse upon the plaintiff who in turn served notice on the defendant that the stock would not be accepted as a delivery.

At this point it may be noted, that the contract was entered into in September, 1919, and the plaintiff made no complaint, until it had received one from its buyer, which was in April, 1920. The defendant had long since received payment for the goods, and denied liability on the ground that the waste had been inspected and approved at the time of its delivery at Houston.

The plaintiff thereupon filed the instant action for damages against the defendant for breach of warranty. This was based on the theory that since the sale was by sample, the defendant's warranty of quality was not affected by the plaintiff's inspection and acceptance at Houston. The plaintiff further contended that the defective condition of the cotton was not discoverable upon a reasonable inspection because the caked and wet sections were in the middle of the bales.

Upon the trial of the case the plaintiff recovered a judgment against the defendant in the sum of $1,947.80. From this judgment the defendant appealed, and the higher court in passing upon the question of whether or not the warranty survived the inspection and acceptance, as outlined above, in part, said:

**Warranty Held Not to Survive Acceptance.**

"I do not think the warranty as to the quality of the goods sold survived acceptance after the plaintiff, through its agent, * * * had inspected and accepted the goods. In the first place, the defendant had no personal knowledge of the condition of the bales of pickings which he sold to the plaintiff, and insisted, the plaintiff acquiesing therein, that the plaintiff should conduct an inspection of the goods sold, in order that there might be no later objection as to the quality of the goods.

"Plaintiff accordingly employed its inspector for the very purpose of ascertaining whether the goods were up to the sample which the defendant had delivered to the plaintiff. In plaintiff's letter to its representative, * * * at Houston, Tex., the plaintiff called particular attention to the very defects which it later on claimed existed in the goods. * * *

"Thus it appears that the plaintiff required its inspector, in making his examination, to ascertain whether there was any caked or short stock contained in the bales of waste. * * * It seems to me, under such circumstances, it cannot be said that the warranty of the defendant survived acceptance by the plaintiff after examination and inspection by its agent. * * *"

Following the above disposition of the question of the survival of the warranty, the court directed its attention to the contention of the plaintiff that the defects in the bales were not easily discoverable hence latent. In disposing of this claim the court said:

"Nor does it seem to me that the defects complained of were in fact latent defects. There was an abundance of evidence given upon the trial that it was an easy matter to ascertain whether the bales contained merchantable cotton throughout. Two winesses at least testified that there was in general use an instrument, known as an 'auger,' by means of which borings were made to the center of the bales and other places, and samples of the contents of the bales were readily obtained. Apparently this would have been a very simple operation, and, if there were a defect in the goods complained of, it would have been easily discoverable. * * *

"It seems to me the reasonable rule to be applied to the facts in this case is that, where parties stipulate that goods are to be of a particular kind and up to a sample submitted, and at the same time stipulate that the goods are to be tested by a person to be selected by the purchaser before delivery, to ascertain whether or not they are up to the quality represented, and where such test is made and the goods accepted and paid for, the purchaser cannot thereafter repudiate the sale, or claim that the goods were not in accordance with the sample. * * *

In conclusion the court reversed the judgment rendered by the trial court in plaintiff's favor, and ordered the complaint dismissed. Holding, as outlined in the opinion, that the warranty as to quality of the cotton waste did not, in the light of the facts of this case, survive the inspection and acceptance of the goods, and that the plaintiff was not entitled to recover damages for the alleged breach of warranty.

# What the Southern Mills are Doing

The Southern Yarn Spinners' Association held its annual meeting in Charlotte, N. C., on Tuesday, March 10th, with a representative attendance. Two resolutions were adopted, urging all spinners to regulate their operations solely by the volume of orders, and another recording the association's approval of standardization and simplification of yarn numbers, plies, etc.

A. M. Fairley, of Laurinburg, N. C., was elected president of the association, with M. L Cannon, B. B. Gossett, K. S. Tanner, and W. B. Moore as vice-presidents, and C. Singleton Green, of Charlotte, was elected as secretary-treasurer.

The main feature of the meeting was the address made by Secretary Green, who outlined the activities of the association during the past year, and recorded some of the accomplishments that had been made possible by cooperation and organized effort on the part of the yarn mills.

In addition to the officers, the board of directors of the association consists of: Robert Chapman, J. A. Long, Clifford J. Swift, Scott Roberts, C. E. Hutchinson, A. R. McEachern, A. F. Draper, J. E. Erwin, T. B. Bunch, J. F. Taylor, H I. Crigler and E. H. Williamson.

* * *

The Lynchburg Division of the Consolidated Textile Corporation acted as host for the Lynchburg Foreman's Club at a recent meeting. Allen F. Johnson, vice-president of the Consolidated Textile Corporation, made the principal address, which was on the subject of cotton manufacturing and its history. Mr. Johnson was followed by Rev. J. H. Lynch, who amused his hearers by a description of the many things a minister is called upon to do besides those he is supposed to do. The speaking was followed by suitable entertainment.

* * *

It is understood that the Enterprise Cotton Mills, at Enterprise, Ala., will install additional machinery for manufacturing.

Social Circle Cotton Mills, Social Circle, Ga., are erecting a brick veneer store building, 80x28 feet, with basement. The building now being used as store and office jointly will be converted into an office building exclusively.

Newnan Cotton Mills, Newnan, Ga., are installing a complete humidification system furnished by the American Moistening Company, Boston, Mass.

Star Thread Mills of the James White Cotton Mills, Athens, Ga., are installing fifty 25-harness Crompton & Knowles dobby looms for manufacturing fancy dress goods and draperies.

Trion Company, Trion, Ga., are to install 100 additional Draper looms to produce heavy drills, it is announced.

Red Springs Cotton Mill Company, Red Springs, N. C., has elected H. P. Jennings, of Lumberton, as general manager of the plant, according to announcement.

The Halifax Cotton Mills, Mt. Pleasant, N. C., have been purchased by A. N. James, of that city, and the mill is now under his management.

Lola Manufacturing Co., Stanley, N. C., are erecting a dye plant to be equipped with beam dyeing machinery.

Green River Manufacturing Company, Tuxedo, N. C., are considering extensive additions and installations of new equipment.

Rowan Cotton Mills, Salisbury, N. C., will more than double the capacity of their plant by the addition of 10,000 spinning spindles. The addition to house this equipment will be 350 feet long, the same width as the present building. In addition to the enlargement of the mill, 20 new homes will be built.

Plans have been released for a six-story warehouse, 120 x120 feet, to be erected by the Proximity Manufacturing Company, Greensboro, N. C. The contract is in the hands of J. E. Sirrine & Co., Greenville, S. C., who are engineers in charge.

The Shelby Cloth Mill is the name selected for the new textile plant to be erected at Shelby, N. C., by E. T. Switzer, O. Max Gardner, O. M. Mull and others. The location will be on the Seaboard Air Line Railway between the Shelby Foundry and Machine Shop and the Eastside Cotton Mill. The new mill will make fancy dress goods, using cotton and silk yarn. Forty operatives' houses will be erected, equipped with water, sewage and electric lights.

The Stewart Mills, Charlotte, N. C., have completed organization, and will establish a plant to manufacture fine goods and cotton and silk mixtures. Those interested are W. R. Talliaferro and C. D. Talliaferro. The mill will have 240 looms.

Monaghan plant of the Victor-Monaghan Mills, at Greenville, S. C., are to install 72 Crompton & Knowles automatic looms, to weave fine combed yarns produced at the Apalache plant of the same company, it is reported.

Judson Mills, Greenville, S. C., plan to erect a community center. The building will be two-story, of brick, with tile roof, with a gymnasium on the first floor and an auditorium of 1,000 seating capacity on the second floor. An outdoor swimming pool is included in the plans.

Joanna Cotton Mills, Goldville, S. C., have increased the capital stock of the company to $2,000,000 from $750,000.

Pacific Mills, Columbia, S. C., have awarded to Parks Cramer Company, Charlotte, N. C., the contract for the installation of a humidifier system, with automatic regulation, at their Granby plant.

Galveston (Texas) Chamber of Commerce is negotiating with the Nobska Spinning Co., Taunton, Mass., relative to moving the equipment of the Taunton mill, including 15,000 spindles, to Galveston. F. W. Nichols, Jr., is treasurer of the Nobska company.

Construction work has begun on the new mill at San Marcos, Texas. The mill will be 132 x 332 feet, and will have 10,000 spindles and 350 looms, manufacturing a cotton shirting.

Parks-Cramer Company, of Fitchburg, Mass., and Charlotte, N. C., has been awarded the contract for the installation of a humidifier system with automatic regulation, at the Kingsport (Tennessee) plant of the Borden Mills, Inc.

Marietta Cotton Mills, Inc., Marietta, Ga., have been sold to the firm of Inman, Williamson & Stribling, cotton factors, Atlanta, Ga. It is understood that an engineering concern has the contract for renovating the plant, and that the capacity will be doubled. The mill was built in 1920 and operated until December, 1923, when it was closed in

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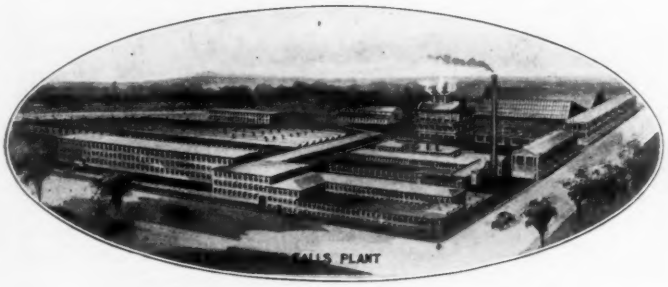

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bankruptcy. It is a yarn mill containing 3,072 spindles.

Morven Cotton Mills, Inc., Durham, N. C., have recently installed full modern equipment for warping and sizing artificial silk, and are in position to take orders for commission work on this material.

J. A. Long, president of the Roxboro (N. C.) Cotton Mills, is said to have plans for erecting a mill at Rougemont, N. C.

Nathaniel M. Pickert, of Madison, N. C., is considering the manufacturing of rayon products at a plant at that place.

## The New England Mill Situation.

The large losses sustained by New England cotton mills last year have continued to attract a great deal of attention and provoke much comment. It is all an aftermath of one of the worst years in business the present managers have been through and has been especially hard on Massachusetts corporations, already handicapped by shorter hours than are exacted elsewhere, and by higher municipal taxation, and adverse legislative enactments. There is not the slightest prospect that any gains made by labor unions in securing legislative enactments to "protect workers" will be lost in the immediate future. All efforts to wipe several restrictions from the law books have failed. The enactments are popular, at least to the point where stockholders and politicians will not take a stand that will be dubbed "going backward."

The natural consequence of this is that investors are turning to other things and banks are becoming rigid in watching the financial returns on which loans are based. All corporation financial returns in Massachusetts are made public, and the law that makes this necessary also affects many corporations whose plants are located outside of Massachusetts. While the publicity of corporation returns has its advantages for the general investor, it makes hard sledding for the managers and is in very strong contrast with operations in the industry in other states.

One of the great safeguards of New England textile investments used to be the universal demand that capitalization should be materially under the cost of replacement of the properties. That rule is still enforced in many organizations where the stock is closely held. It has its disadvantages in times like the present, when for the purposes of national taxation, Federal agents come in and place valuations upon properties quite out of line with those heretofore considered safe by prudent New Englanders.

The condition disclosed in the case of the Amoskeag Company, where a stockholder questioned the accuracy of the financial report made to the company by the treasurer, was the outgrowth of two different forms of estimating the values of the plant. One was the traditional one of placing a conservative value upon merchandise and raw material, as well as fixed assets, while the other was the Federal government method of pricing the worth of the plant at its present day replacement cost and its actual market worth so far as merchandise and raw material was concerned. In the long run of the years, so long as textile values and profits fluctuate so widely, it is far better for the stockholder that his property shall not be too highly valued, but when a value is placed on things for the purpose of getting the largest tax possible from it, stockholders' interests are secondary.

For a time there were people who were cynical in their remarks about the two kinds of financial reports concerning the Amoskeag Company, but it recently all came out that the treasurer made up his own valuation for the stockholders in the way that the mill has figured its values for a generation or more. The Federal valuation was placed by men working for the government, whose statements were neither approved nor disapproved by the treasurer. In fact, he and the other officers showed them the books and told them to "go to it" in making up their own statements.

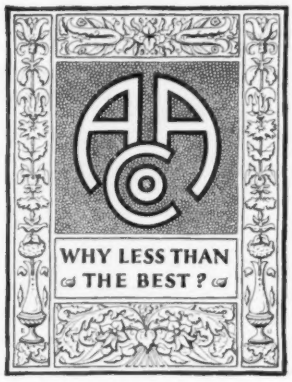
This instance serves to show better than any other, that in order to judge accurately of the merits or demerits of losses now being published by certain mills, it is necessary to get down to bed rock in figuring actual capitalization as based upon productive power. There are some mills whose losses look mighty large but they are not so great when it is recalled that they are based upon high capitalization, and previous estimates of raw material and high merchandise valuations, established when costs and values were different from those of today.

These things have a peculiar interest now because there has been a swing of investment toward some of the mills in the South known intimately to New England investors. In keeping with their traditional policy they are favoring the plants of low capitalization and steady dividend paying records, rather than the mills that have paid the largest dividends some years only to be followed by quick changes in succeeding years.

One of the great difficulties New England mill managers are finding is that investors are not ready yet to put more money into plants for the purpose of re-equipping them, or giving them larger merchandising capital. There has been so much talk that New England was not a sound locality for further textile investment that proper attention has not been given by the older stockholders to the need for more capital to meet rapidly changing selling methods and production. Some concerns are using their surpluses to go into new work but they are not numerous and they are usually the plants that have been engaged for years in fancy and novelty production, so that the policy of re-equipment is not a new one to them.

The most notable recent instance of re-investment in textile properties in New England is that of the American Printing Company at Fall River. In the past seven years probably $6,000,000 of the earnings and reserves have been spent changing over the printing plant. Today it is producing more than 50 per cent of its output on fine combed cloths, fancy fabrics, or special cloths for exporting. It has equipped for vat dyeing, mercerizing, multi-color printing, all-work tentering, special bleaching, export packing, etc., and has the largest and most economical oil burning, electric plant of any textile establishment in the country. Electrical power has been applied in every possible way throughout the plant.

For a month or more it has been removing machinery from one of its latest cotton mills to a new plant now being completed at Kingsport, Tenn., and will soon have in working order there a mill of nearly 100,000 spindles, that will not cost much over $30 a spindle, complete. The new mill will supply wide print cloths for the Fall River plant. There are some other mills in New England, notably the

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Pepperell, Lonsdale, and Appleton, that have, or will have, applied some part of their reserves in buying or building southern additions to make some special part of their product that cannot be profitably made in New England at the present time. It is not yet clear, however, that these investments mean that stockholders want to put in new money.

The whole Fall River situation, where hardly 70 per cent of the capacity of the plants has yet become active, hinges around the unwillingness of investors to put more money into their plants for the purpose of modernizing them, or rather changing them over to work that will be more profitable. This all means that while labor has been demanding its full share of industry, it has been driving away the capital that supplies it with work. That side of the problem of textile manufacturing in New England is the most unpopular thing imaginable.

The mills are doing much better than they were, even some of the Fall River mills, engaged on fine work, being fully engaged. But all the fine goods mills are complaining of the narrow margin of profit in business due in part to the high premiums commanded by grade cottons, and of the inroads that are being made into fine cotton goods merchandising by the call for rayon yarn mixtures. Many of the mills are using rayon yarns and making a profit on them, but they are not able to use considerable of the machinery they have installed for cotton spinning. There has been an unusually large production of cotton and silk goods in New England this winter, a fact now apparent in the wide variety and large volume of those goods in the markets.

Job finishers have not been very busy. Some are running full on specialties like broadcloths, fine sateens, and rayon mixtures. Others are doing very little and it is doubtful if the finishing plants in this section are more than 70 per cent employed, on the whole average. The mills making silk and cottons, rayon and cottons, and broadcloths and fine sateens are active. There is also an abundance of business for the mills making the standard sheetings and pillow cases, flannels, bedspreads, crash towelings, and other lines. The large corporation printers are exceedingly busy, the American Printing Company running many departments at night, and the Windsor works being run night and day in some departments. The Pacific mill bleachery is fully occupied but many of the small bleacheries are running hardly 60 per cent.

While none of the large manufacturers of ginghams have sold up and withdrawn their fall products, recently opened at one cent a yard advance, they have booked as much business as they care for at present prices and will be able to keep occupied all summer to 60 per cent capacity if nothing further develops. Buyers have purchased the new fancies in great volume but have ordered sparingly on plain goods. As the fancies are not produced rapidly and are very costly, the tendency of mills is to take on only those orders they can complete on time, and not equip looms until there is a real demand for the many new goods that have not yet reached consumers. A very great part of the New England yarn dyed output for fall will be of a novelty character although roughly classed as ginghams.

Some orders have recently been received by New England machinery shops for mills to be built in Spain and Italy. These orders follow along after some other business done in the past year or two. The American textile machinery is preferred in these countries where cotton mill expansion is more active than elsewhere, prompted in part by power development from water falls.

## Cotton Comment.

BY H. AND B. BEER.

New Orleans, March 14th, 1925.

The trend of the cotton market was to higher levels the past month, scoring a further advance of about one cent, or about $5 per bale, due to the continuance of the drouth in Oklahoma and Texas, and because of no let up in the demand, particularly for export.

There remains much uneasiness in trade circles as regards the lack of rainfall in the Southwest, where about 45 per cent of last year's big crop was made, and the impression prevails that this year's yield in Texas and Oklahoma will not be as good as it was last year owing to the absence of a good season in the ground.

Elsewhere in the cotton region, however, farm work is well advanced, especially in the central portion of the belt, due to more favorable weather conditions of late, particularly in the South Atlantic States.

Exports from the United States continue free and show an excess over last season to date of 2,063,000 bales, amounting to 6,440,000 vs. 4,377,000, now running on a basis for the whole season of 7,721,000 bales, with prospects of eventually reaching 8,000,000, against 5,658,000 for the whole of last season.

The world's visible supply of American cotton remains large—4,022,000 bales vs. 2,405,000 one year ago, but the world's visible supply of foreign growths continues light compared with last year—1,451,000 against 1,807,000, which accounts for foreign cotton remaining at a relatively higher price than American. As a result the American product continues in good request.

The rapidity with which raw cotton is being exported from America is making fast inroads on stocks in the interior, which are not much larger, in some instances less, than last year, last year's large crop notwithstanding, making it appear as if another large crop will be needed for next season, of which there is no assurance at present.

Census Report.

| United States— | This Season | Last Season |
|---|---|---|
| Consumption, Feb., includ'g linters. | 600,730 | 550,360 |
| Consumption, 7 mos., includ'g linters | 3,838,344 | 3,934,096 |
| Mill stocks, Feb. 28th..... | 1,546,210 | 1,583,439 |
| Stocks in public storage, Feb. 28th | 3,075,140 | 2,497,075 |
| Total stock February 28th..... | 4,621,350 | 4,080,514 |
| Active spindles during Feb..... | 33,277,189 | 32,710,622 |
| Active spindles during Jan..... | 33,180,758 | 33,279,926 |

As noted above, the total stock in the United States at the close of February was only 540,836 bales larger than last year, with no replenishing possible since all of last year's big crop has been about ginned, which discloses the growing bullishness of the statistical position on this side of the Atlantic. Meanwhile exports promise to continue larger than after this time last season, mill stocks are a shade smaller than one year ago, and active spindles are increasing in this country at a time when they were decreasing last year.

GLENN-LOWRY Y. M. C. A.

WHITMIRE, S. C.

Brunswick-Balke-Collender Co.,
35 South Forsyth St.,
Atlanta, Ga.

July 25, 1924.

Dear Sirs:

We have your request regarding our bowling equipment and billiard tables that have been in service for five years.

Will state that these features in our building are one of the great benefits that we have in co-operating with our employees. We all get together around the tables and in the bowling room and learn to know each other better.

The equipment that we have has given us entire satisfaction and after about five years use is in A number one condition. We feel free in saying that we could recommend your equipment to any one who desires the very best of equipment and service.

Yours truly,
C. T. Allbuchd
Mgr. Y. M. C. A.

*Community Building, Glenn-Lowry Manufacturing Company, Whitmire, S. C.*

*A corner of the billiard room in this building.*

*The bowling equipment.*

# *Fostering labor co-operation*

A RECREATION centre in industrial plants brings greater co-operation between employers and employees. There is an enhanced employee good-will, a higher efficiency, better co-operation, and a noticeable reduction in labor turnover.

As evidenced by the letter and views illustrated above, the Glenn-Lowry Manufacturing Company, of Whitmire, South Carolina, has found its billiard and bowling equipment most beneficial in establishing contact with its employees and advancing the spirit of co-operation.

As makers of the world's finest billiard and bowling equipment, the Brunswick-Balke-Collender Company has furnished the equipment used in the country's most successful industrial welfare associations. The knowledge and experience thus gained is at the disposal of any one interested in this means of effecting a closer relationship between employer and employee.

*The* BRUNSWICK-BALKE-COLLENDER *Company*

*Branch houses in the principal cities in the United States and Canada*

623-633 South Wabash Avenue, CHICAGO

In England, the trade situation is apparently encouraging also, as noted by the following returns:

British Board of Trade Report for February.

| | This Year | Last Year |
|---|---|---|
| Exports of yarn, pounds..... | 16,000,000 | 14,000,000 |
| Exports of cloth, yards..... | 422,000,000 | 397,000,000 |

Turning again to the outlook for the next crop, we find that sales of fertilizer, according to returns to Secretary Hester, in eight cotton states, from Aug. 1 to Feb. 28 inclusive, totaled only 1,017,309 tons vs. 1,416,346 tons for the corresponding period last year.

Reports as to the need of a general, soaking rain over Oklahoma and Texas are not exaggerated, as noted by the following official returns:

Total Average Rainfall Sept. 1st to Feb. 28th.

| Inches— | This Season | Last Season | Normal |
|---|---|---|---|
| Texas ..... | 7.93 | 22.21 | 13.74 |
| Oklahoma ..... | 8.56 | 23.17 | 11.33 |

At the moment the trade is awaiting with interest the government's annual report as to survival of the weevil this year. A rather bullish report is possible since only one weevil to one ton of moss survived last year vs. 19 to one ton year before last and 127 to one ton in 1922. The small survival last year was followed by small weevil damage.

## Using Photography in the Cotton Mill.*

BY HARRY ROSE.

When we first began to make photographs and were in reality learning how to do it, we began by photographing about everything in sight that had any bearing on cotton and its manufacture. These photographs were carefully filed away and with the passing of time their usefulness has been demonstrated time and again. We have often had occasion to refer to them, not only to refresh our memory on some of our early work, but also to make comparisons with present work. For instance, how many mill men remember what the yarn which their mill produced six months or a year ago looks like? Of course, they blackboarded samples of it at the time and looked it over carefully and made mental or written note of its cleanliness, evenness, or fuzziness, but how vivid a picture is that memory at present? How does the present product compare with that earlier yarn? The mental or written note cannot answer satisfactorily these questions. Such questions can only be answered satisfactorily by comparing the actual samples themselves, or the next best thing, by comparing standard photographs of the various samples.

The various types of photographs which we have made are more or less familiar to most of the members of the organization, as our reports on different tests generally contain one or more photographs of charts, curves, machines, yarn, cloth, or what not. Therefore, it is unnecessary to review at length the above classification. I will, however, mention briefly what is embraced in each class of photographs.

1. Cleanliness of raw cotton. We have made photographs of small samples of raw cotton preliminary to making a test. Later, these photographs were filed with the best results showing the cleanliness of the cotton we started with. This was particularly helpful in some of our earlier cotton tests when we made a comparison of the running qualities of various kinds of cotton.

2. Evenness of picker laps. During our tests on the efficiency of the various types of beaters, and comparison of their effects on the cotton staple, we made many pictures of the fringe of cotton on the feed roll of the pickers and also photographed sections of a picker lap. This was done in an unique way. The surface was not photographed, but the lap was laid on a piece of ground glass which was illuminated from below. Thus we got a picture of the arrangement of the fibers by transmitted light. It showed clearly the difference in evenness of laps made by the various types of beaters.

3. Evenness of yarn. I have briefly mentioned previously that photographs of blackboarded samples of yarn are valuable chiefly for purposes of filing and recording. The product of a mill can from time to time be boarded and photographed. Photographs of blackboards are as good as the original boards for observation purposes, and the advantages of a photograph over the board itself for filing purposes are too obvious to dwell upon in detail.

4. Cleanliness of card web. This sort of photograph can of course only be made very close to the scene of operation of the card. We succeeded in catching some of the web on a blackboard and photographs of various samples gave us a good idea of the efficiency of the card in cleaning the cotton.

5. New devices. Many new devices have been made from time to time at the Cotton Research Company. These were photographed in various stages of construction and operation, and these photographs serve as a record of progress in our lines.

6. Unusual conditions or attachments on machinery. Whenever we discover anything out of the ordinary or unusual pertaining to the running or operation of a machine, a photograph is generally made and filed away for future reference. Many times we have occasion to refer back to it, and it is always at hand for this purpose. Then, too, many manufacturers of new devices or attachments to present machines bring them to our laboratory for testing out. In such cases, photographs are generally made to accompany reports.

7. Method of performing operations. Sometimes it happens that a given operation can be performed most efficiently in a certain way. A series of photographs of the various steps in doing this have been made for educational purposes. This is one class of photographs which might be made particularly useful to a mill. Would it not be possible to educate the operatives as to the correct and incorrect methods of performing certain operations? A photograph can certainly teach this much better than oral or printed instructions, and is constantly before the worker.

8. Charts and curves for records. A vast amount of our work is contained in charts and curves of results. Most of these are photographed in order to have a ready means of sending out copies and also for uniformity in filing, as it is better to file uniform pictures than originals of all sizes and shapes.

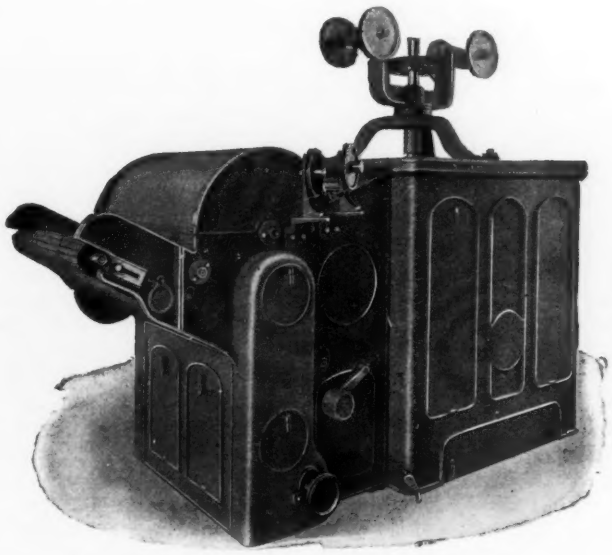
9. Educational. Under this heading I include lantern slides. We have all the necessary equipment for making lantern slides and for showing them. With our portable projection machine we can make and have made trips to mills giving illustrated talks on various topics connected with cotton manufacturing.

*From "Builders," Lockwood, Greene & Company.

# COTTON MACHINERY

## NEW MODEL CRIGHTON OPENER

*With Cage Section and Apron Delivery*



This type of Opener has been used successfully for many years in England and on the Continent. Its superior cleaning qualities make it an ideal machine for working low grade cottons. It has the advantage of adaptability to almost any combination of opening equipment.

The illustration shows a single section "Crighton" Opener complete with Balanced Rope Drive, Cage Section and Apron delivery. Machines are built without the Cage Section and Apron delivery when desired, and installations can be made with one, two or three "Crightons" in a line or section. We furnish these machines with Direct Belt, Individual Motor, or Spiral Gear Drive when desired.

## H. & B. AMERICAN MACHINE CO.

**Pawtucket, R. I.**

**Southern Office: 814-816 Atlanta Trust Co. Bldg., Atlanta, Ga.**

# NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

GEORGE W. MURPHY has become superintendent of the Columbus Manufacturing Company, at Columbus, Ga., succeeding the late John H. Hines. Mr. Murphy recently has been superintendent of the Aragon (Ga.) Mills.

FRANK L. ASBURY, JR., formerly assistant superintendent of the Hillside Cotton Mills, LaGrange, Ga., has been made superintendent of the Valley Waste Mills, at LaGrange.

DAVID LINDSAY, for a number of years general superintendent of the Fieldale Mills, Fieldale, Virginia, has accepted a position as treasurer and manager of a mercerizing plant, to be located at Spindale, N. C., known as the Spinners' Processing Company. Mr. Lindsay is a graduate of the textile department of the North Carolina State College.

T. H. MOORE, who has been connected with the Waxahachie Cotton Mills, at Waxahachie, Texas, has resigned and accepted a position as superintendent of Mills Nos. 1 and 2 of the Cotton Mill Products Company, at Natchez, Mississippi.

FRANK B. COMINS, treasurer of the American Moistening Company, Boston, Mass., spent several weeks in the South recently on a combined business and pleasure trip, his itinerary including Atlanta.

H. M. RHETT has been made treasurer, secretary and general manager of the Dallas Manufacturing Co., Huntsville, Alabama, to succeed the late A. L. Rison. Milton H. Lanier, of Huntsville, was elected vice-president, succeeding Mr. Rhett, who resigned the vice-presidency to accept the offices formerly held by Mr. Rison. Mr. Rhett is president of the W. B. Rison Banking Co., and Mr. Lanier is a prominent lawyer of Huntsville.

W. L. SIEWERS, president, and for a number of years active manager of the Indera and Maline Mills, Winston-Salem, N. C., has resigned, and Col. F. H. Fries, vice-president, has assumed the duties of Mr. Siewers until a new president is named.

DAVID S. WHITE and two associates have purchased the Green Bay Knitting Mills, Green Bay, Wisconsin, and are preparing to operate the plant in full.

ROBERT W. SCOTT, of Scott & Williams, Inc., died on Monday, February 16th.

EARLE MAULDIN, executive manager of the last three textile expositions in Greenville, and formerly connected with J. E. Sirrine & Company, has resigned from the Sirrine organization to become vice-president and general manager of the firm of W. M. Welch, Inc., general contractors, with office at 508 Woodside Building, Greenville. Mr. Mauldin assumed his new duties on March 1st.

ARTHUR W. WIESE has been appointed manager of the Philadelphia office of the Strom Ball Bearing Manufacturing Co., with office at 309 Lincoln Building, Philadelphia.

GEORGE H. LANIER has been elected president of the West Paint Manufacturing Company, of which he has been vice-president and general manager.

M. C. PHILLIPS has become overseer of weaving at the Wennonah Cotton Mills, Lexington, N. C.

A. P. MCBEE has become overseer of weaving at the Social Circle Cotton Mills, Social Circle, Ga., succeeding J. H. Higginbotham, resigned.

C. L. LEONARD has become overseer of weaving at the Arkwright Mills, Spartanburg, S. C.

J. B. KNIGHT has become overseer of spinning at the Adams Duck Mills, Macon, Ga.

W. C. BOWDEN has become night superintendent of the Waco Twine Mills, Waco, Texas.

WINDER GARY, assistant superintendent of the Ware Shoals Manufacturing Company, Ware Shoals, S. C., recently was married to Miss Lola Thomas Cobb.

W. E. G. ROBINSON, vice-president and general manager of the Robinson Spinning Co., Charlotte, died recently at the age of 43 years.

D. E. FRYE has become overseer of spinning at the Wade Manufacturing Company, Wadesboro, N. C. He formerly was overseer of spinning and winding at the Cheraw Cotton Mills, Cheraw, S. C.

J. H. JOHNSON has been promoted to superintendent of the Cheraw Spinning Company, Cheraw, S. C.

J. H. CARPENTER recently resigned as overseer of spinning at the Aragon Mills, Aragon, Ga.

J. T. COPELAND has become assistant superintendent of the Alta Vista Cotton Mills, Alta Vista, Va., succeeding J. A. Short, who recently resigned.

JOHN ARNOLD has returned to his former position as overseer of carding at the Ensign Cotton Mills, Forsyth, Ga.

J. A. NORRIS is now overseer of spooling at the Loray Division of the Manville-Jencks Company, Gastonia, N. C.

J. L. KANEER, superintendent of the Millis Cotton Mills, High Point, N. C., was married on February 28th to Miss Fay Horney, of High Point.

A. E. WHALEY has become overseer of spinning and winding at the Cheraw Spinning Mills, Cheraw, S. C., succeeding D. E. Frye.

A. C. REVELS has resigned as superintendent of the River Hill Spinning Company, Cheraw, S. C.

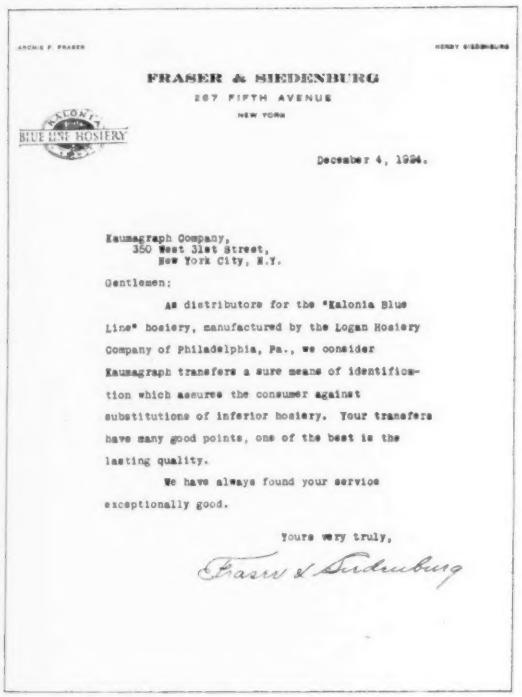
R. W. HOLLIS has resigned as superintendent of the Cheraw Spinning Mills, Cheraw, S. C., to accept the superintendency of the River Hill Spinning Company, of Cheraw.

DR. LOUIS J. MATOS, textile chemist for the National Aniline & Chemical Co., recently made a southern trip, during which he visited West Raleigh, N. C., Atlanta, Ga., and Nashville, Tenn. He spoke at the North Carolina Textile School, and at Vanderbilt University in Nashville.

HOWARD JENKINS, of The Fleischmann Company, New York, was a recent visitor to Atlanta and other points in the South.

# *Can you* get a check cashed in a strange bank?

## *A manufacturer says:*



ARCHIE F. FRASER HENRY SIEDENBURG

**FRASER & SIEDENBURG**
267 FIFTH AVENUE
NEW YORK

"KALONIA" BLUE LINE HOSIERY

December 4, 1924.

Kaumagraph Company,
350 West 31st Street,
New York City, N.Y.

Gentlemen:

As distributors for the "Kalonia Blue Line" hosiery, manufactured by the Logan Hosiery Company of Philadelphia, Pa., we consider Kaumagraph transfers a sure means of identification which assures the consumer against substitutions of inferior hosiery. Your transfers have many good points, one of the best is the lasting quality.

We have always found your service exceptionally good.

Yours very truly,

Fraser & Siedenburg

In a strange place, you realize to what an extent you are judged by appearance.

So are goods—your goods. This is demonstrated by the fact that many firms mention how particularly helpful the Kaumagraph-mark is in their ***export business.***

People in distant countries may not know much about a concern but when they see a handsome, important-looking trademark on the goods, they at once are made to think favorably of the manufacturer.

The Kaumagraph way of marking is an improvement for these important reasons:

*—it is easy and quick to apply*
*—the result is a neat, handsome mark*
*—the imprint latsts*

Our new lithographic department now enables manufacturers to get their labels, hang tickets, etc., and transfers all from the same source.

Write to us for full information about this service and for sample markings of the transfer itself.

KAUMAGRAPH COMPANY

350-356 West 31st St., New York City

Canadian Branch: Kaumagraph Limited, Paris, Ontario
BOSTON CHICAGO PHILADELPHIA CHARLOTTE, N. C. PARIS, FRANCE

*Trade-mark your textiles, hosiery, etc., with*

**Kaumagraphs**

**KAUMAGRAPH CO.,**
**350-356 West 31st St.,**
**New York City.**

Please send us full information about Kaumagraphs with samples.

Name _____

Address _____

COTTON 4-25

# Reduce Your Spool Costs!

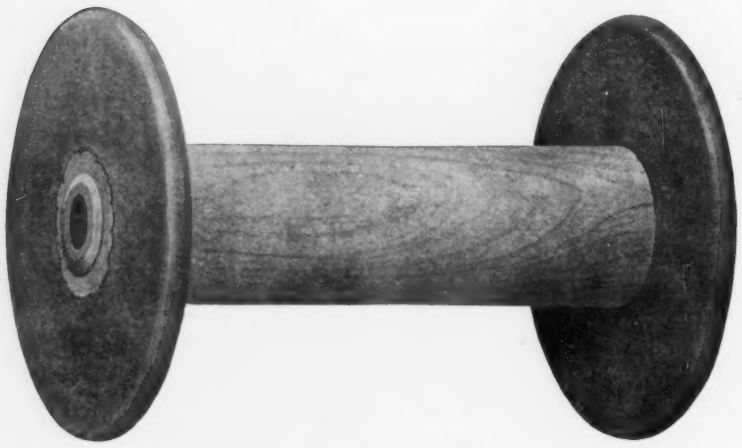
Broken spools annually cost the textile industry hundreds—yes thousands of dollars not only in wasted yarn, but in loss of time and injury to employees. Much of this loss can be eliminated by using a little care in the selection of spools.

U S Fibre Head Spools were designed to give longer service, speed up the work and promote economy in this phase of the industry. The thin head of U S Fibre Head Spools being extremely tough, allows a greater traverse for the same length overall, freedom from rough edges and the elimination of possible injury to employees, which so often occurs with wood spools.

We guarantee our Fibre Head Spools to be the equal of any that are now on the market, and will make good any that proves defective under ordinary usage.

*The best way to prove the worthwhile advantages of U S Fibre Head Spools is to write for samples and give them a thorough trial in your own mill.*

## U. S. Fibre Head Spools



U S BOBBIN & SHUTTLE Co.

LARGEST BOBBIN and SHUTTLE MANUFACTURERS in the WORLD

Eight Factories

Providence R.I.

Good health—good jobs—good salaries like all the other good things must be *Earned.*

You can't get something for nothing.

That is just plain common sense.

Well, if it is so plain and every fair-minded man is supposed to know it, how can you explain that so many—yes, a large majority of people—act as though they were entirely ignorant of such a fundamental fact?

I cannot recall a single example of nature in this entire big world of ours that does not show very clearly that—

*"You can't get something for nothing."*

All animals are compelled to earn their living—to earn their pleasure—to earn their very existence.

Even the simple old cow must pick grass in the hot sun all day—wad it up in little balls and store it away in her stomach—in order to be able to have the pleasure of lying down and eating those little balls of grass in the evening.

*"You can't get something for nothing."*

If you expect to have good health, you must make the sacrifices of not doing many things you want to do and of *doing* many things you ***don't*** want to do, to obtain it.

If you expect to accumulate much of this world's goods you certainly must make thousands of personal sacrifices to save any money—it matters not how large your salary may be.

And now here comes the big one—If you expect to get that "big" job—it just simply cannot be done without personal sacrifices—you must work when the other fellow loafs—you must put in twelve, fourteen or whatever number of hours it takes to "Beat the Other Fellow" while he gets by with the stopping and starting whistle.

You must have patience—because history shows us that the "Get rich quick" man, usually dies poor.

So it is with the "Get the big job quick" man, he usually winds up with a little one.

You remember "Old Timer" has often tried to explain that it is not lack of ability that holds most men back from the "Big" job but lack of doing the very best they possibly can, what they actually do know how to do.

It is a strange fact that most of us can tell ourselves the things about our own work that would boost our production, lower our cost, make us more valuable to our employer—then why in the dickens don't we do it? What is psychology anyway?

A woman will "gossip" when her better judgment tells her she should not. Why—?

The average man *knows* what it takes to get that Big job—but the darn fool just simply will not *make* himself do those things.

Then he sets up a howl about the other fellow *having* the good jobs.

A lot of us have very high opinions of what we can do, but we don't back them up.

Unearned fortunes and unearned "good jobs" are never the success of *earned* ones.

If you think you have more than your share of Hardships—just remember you have been getting better training for the "big job" than the fellow who has had the easy time, and it will be the means of you holding yours, while he stands a good chance to lose his, when the test comes.

You know it is no trouble at all to slide down hill, in fact, the farther you slide, the faster you move—but it takes a *man* to climb up hill. Are you sliding?

Of course it takes energy to climb but—

"You can't get something for nothing."

The man who wants to become an overseer must first learn to cooperate with the overseer over him. The overseer who wants to be superintendent, must learn to be a part of the superintendent over him. The man who aspires to be a manager must first learn to be *managed.*

The world has never produced a man who was able to go it *alone*—then it naturally follows that the man who can obtain the most cooperation, or teamwork from others, is the most successful man.

How are you working with your section men? How are you working with your help? What are you *doing* to encourage teamwork—cooperation?

I have often thought that every overseer and superintendent should have had military training of some kind, because armies certainly represent "Teamwork"—without Teamwork an army would only be a mob.

Mill work is very closely allied to an army.

The Teamworker is of course a good judge of human nature—he hasn't got a "chip on his shoulder"—he is not stubborn—he will listen to his superiors—he is broad minded enough to try to see the other fellow's point of view—he cooperates—he puts the good of his firm *First*—he is not concerned so much about whether he will get credit for so and so or not—he lets service come before self—he is ready to give and take because he realizes that:

"You can't get something for nothing."

---

It is not luck—it is not chance—it is not pull—money can't buy it—But Stop! No need to always be looking somewhere else to find the way to obtain success. Look within the confines of your own being—be master of *yourself*—it is within you and not someone else to make a success—but you must have the will-power.

# "Budget Control"

## What it is and How to Do it

*A VITALLY HELPFUL BOOKLET FOR EVERY EXECUTIVE*

"Budget Control" takes all mystery and confusion out of budgeting.

It shows why the Budget is the most important material factor in the success of any executive's plans.

A book of successful practice, not theory—it is the working experience of a highly specialized organization which for more than twenty years has served progressive business in the field of practical accounting in many and varied lines of endeavor, nationwide in extent.

It shows how every detail of buying, production, financing and selling can be planned in advance—*then checked with and regulated by actual operations to assure profits and prevent loss.*

*"Budget Control"* is a contribution in the interest of *Better* Business. It is a 32-page booklet, with tables and charts, and is just off the press. It will be mailed to executives on request. Address nearest office.

## ERNST & ERNST

AUDITS—SYSTEMS—TAX SERVICE

| | | | | | | |
|---|---|---|---|---|---|---|
| NEW YORK | BALTIMORE | PITTSBURGH | DETROIT | MINNEAPOLIS | DENVER | NEW ORLEANS |
| BUFFALO | WASHINGTON | COLUMBUS | GRAND RAPIDS | MEMPHIS | OMAHA | DALLAS |
| ROCHESTER | RICHMOND | YOUNGSTOWN | KALAMAZOO | ST. PAUL | SAN FRANCISCO | HOUSTON |
| BOSTON | CLEVELAND | AKRON | WHEELING | DAVENPORT | LOS ANGELES | FORT WORTH |
| PROVIDENCE | CINCINNATI | CANTON | ERIE | INDIANAPOLIS | ATLANTA | SAN ANTONIO |
| PHILADELPHIA | TOLEDO | DAYTON | CHICAGO | ST. LOUIS | JACKSON | WACO |
| | | LOUISVILLE | MILWAUKEE | KANSAS CITY | | |

# NOMARKOFF

REG. U. S. PAT. OFF.

# RUBBER COVERED ROLLS

FOR

Gingham MILLS

DYE WORKS BLEACHERIES

**STOWE & WOODWARD CO.**

**NEWTON UPPER FALLS, MASS.**

# HOW OTHER MEN MANAGE

## Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

**We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.**

### What Causes the Yarn to Snap?

Editor Cotton:

Will some readers of "How Other Men Manage" kindly offer some suggestions on the following problem:

I am making 30s warp out of 7/8-inch staple cotton. I use a 1¾-inch ring, No. 2 flange, with 7-inch traverse, 13/16-inch whirl, 1-inch front roll, 7/8-inch back and middle rolls, 5.56 hank roving, with 10/0 travelers. The front roll speed is 88 r.p.m., with standard warp twist.

The yarn seems to break at the ring. If I increase the speed the thread snaps down, and all the trouble seems at the traveler. My rings have been run eight months. Any information received through Cotton will be appreciated.

M. F. (Tenn.)

### A Roll-in Thread Clamp.

Editor Cotton:

Probably every mill using automatic looms with bobbin feelers has had more or less trouble with double picks or "jerk-ins" due to the shuttle feeler, or "goose-neck" not holding the end until the temple knife cuts it off at the selvage. If the goose-neck knife fails to hold the yarn after cutting it, there is every likelihood that the shuttle will catch it on the way back and carry it into the shed.

The usual arrangement of the goose-neck knife is simply a blade sharp on one side and dull on the other; the sharp

side being away from the temple, and the dull side next to it. The dull edge is supposed to slide over another dull piece of metal and grasp the end until the temple knife cuts it; the sharp side of the knife at the same time cutting the thread so that the bobbin can fall free into the box under the magazine.

The knife in the goose-neck often fails to hold the end properly; either on account of being too sharp, and cutting it; on account of both dulled edges being too much rounded, and not grasping the yarn properly, or on account of an improper adjustment of either knife or pressure spring on the knife.

To overcome these difficulties, a Massachusetts mill man has devised an entirely new arrangement for holding the yarn in the goose-neck. This is illustrated in the accompanying cut. The plate bolts on the goose-neck knife in the same manner as the old style solid plate; the small roller going under the knife so that when the knife comes down it will bite the yarn between itself and this roller. As the roller turns very easily, the knife cannot cut the yarn, even if the edge should be sharp enough to cut the end off at once with the old arrangement. The thread being rolled in between the knife and the roller, is held firmly until the knife is raised again. The roller projects under the knife about 1/32 inch, so that it is sprung out slightly when the knife goes down, and the pressure spring whose function is to hold these parts tightly together can always be depended on to keep the whole assembly clamped tight, due to this springing out.

The inventor of this device showed me a number of them in use on Draper looms weaving worsted dress goods on which partial, or double picks are highly objectionable, and claimed that they were absolutely free from this trouble, and that he had looms on which these clamps had not been touched by a fixer in a year.

As these parts require frequent adjustment and tinkering in the average weave room, this would seem to be a real improvement that would interest anyone troubled with "jerk-ins" on work where these cause a large amount of seconds, and I thought you might be interested in publishing this for the information of your readers. The device is patented, and is, so I understand, now on the market.

D. P. (Mass.)

### Causes for Yarn Sticking on the Slashers.

Editor Cotton:

In reading over the question of "Y. W. (S. C.)," with reference to yarn and lint sticking on the slasher cylinder, as published in the March issue of Cotton, I thought I was going to have an easy time answering it until I found that he said, after stating that his 20s yarn was doing this, that, "I don't have this trouble on my 30s yarn."

There are several reasons for lint and yarn sticking to the cylinder, one of which is generally the lack of lubrication in the compound, and I would advise him the next time he runs 20s yarn to put in the kettle a couple of pounds of pure tallow, or its equivalent, with his compound.

This trouble may be caused by putting what we would term "cold size" on the yarn. This doesn't mean a tem-

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SLIP-NOT Leather Belting has made a name for itself. Its reputation is built entirely upon what it can do. You who use it know that the claims we make for it and the way it performs are thoroughly in harmony.

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And, after all, there is only one thing you are interested in, and that is *results*. This SLIP-NOT gives in generous measure.

*Ask your dealer for* **SLIP-NOT** *Leather Belting. If he doesn't carry it we'll be glad to tell you who does.*

SLIP-NOT BELTING CORPORATION
KINGSPORT, TENNESSEE

# REEDS

Although our new Southern Plant has been in operation only four months, we have been compelled to operate both day and night to take care of orders from Southern Mills for our high quality reeds.

Over 80% of this day and night production has been on high counts, 48 to 67 dents per inch.

This alone will tell you there is here a reed plant at your very doors ready to give you the highest quality reed service to be had, excepting none.

In the personnel of our Staff are Expert Textile men with years of experience in mill problems. This expert advice is at your command merely for the asking.

## STEEL HEDDLE MANUFACTURING CO.

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"Duplex" Loom Harness (complete with Frames and Heddles fully assembled).
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perature of zero by any means, but a temperature anywhere from 185 degrees down. This applies to the size in the size box.

I suggest that, while his cylinder is running, he glance across the face of the large cylinder and see if all the yarn has a tendency to follow the cylinder. In other words, the yarn should leave the cylinder at the point of a direct line from the cylinder to the delivery of the yarn. If all the yarn hugs the cylinder this is absolute proof of lack of lubricant in his compound. If it is only in spots then he should look for water dripping from the hood, as this will invariably cause the yarn to stick in spots, when carrying a high amount of steam, as "Y. W." says he is carrying.

The only explanation I can give for his having this trouble with 20s yarn, and not experiencing it with 30s, is that he is running just on the danger line on his 20s, and his 30s being a lighter yarn dries more quickly, just enough to avoid the sticking. This 30s yarn, however, may be ripping over the cylinder; in other words, it may be carried around the cylinder until it pulls itself loose. It would be a good thing for your correspondent to look into this.

This is the best I can do for him, not knowing more of his conditions and what he is using in the way of a compound. H. J. (GA.)

## A Loom Beam Bearing and Lock.

EDITOR COTTON:

A new loom beam bearing and lock has been patented by several mill men in Newberry, S. C., and a description of it is given in the follwing paragraphs, with the aid of the accompanying illustratons. The invention is designed particularly for loom beams which through years of use have become so worn in the usual journals in the loom sides as to necessitate renewal of the beams and sometimes of the loom sides. The device provides a bearing to avoid the necessity of renewing these parts when worn, as well as forming a new bearing for the beam, and a lock for it. Furthermore, with this device, the beam may be easily and quickly adjusted, with elimination of waste and more satisfactorily uniform results.

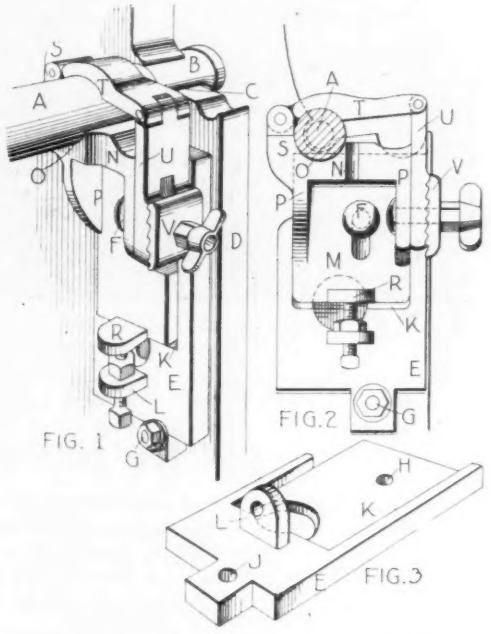
The drawings in Figure 1 and Figure 2 will show the operation of the bearing. Figure 1 is a perspective view of the practical application, while Figure 2 shows a detail perspectve view of the bearing support or body plate. The beam *A* is shown with its reduced end *B* in the usual journal *C* on the loom frame side *D*. The present invention includes a bearing attachable to the inner face of each frame side to support the loom beam at a new unworn point inward from the reduced end *B*.

A cast iron support or body plate, *E* (Fig. 2), is fastened to the loom frame side *D* by means of bolts *F* and *G* which pass through the openings *H* and *J*. The body plate *E* is reduced in thickness at its upper central portion forming a vertical guide channel, *K*, just below which is a lug, *L*, with a set screw on which is a lock nut which acts against the upper face of the lug to hold the set screw securely in place.

A bearing bracket *M*, which fits in the guide channel *K*, has at an approximately central point a vertically slotted opening through which the upper connecting bolt *F* connects the bracket to the body plate and loom side. This bracket also has an upper flanged portion *N* provided with a concave seat *O*, in which the loom beam *A* rests. This flange is reinforced by vertical webs, *P*, at the opposite sides of the bracket, and the lower central portion of the bracket has a laterally outstanding lug *R*, which engages with the set screw in the lug *L*.

Thus it is evident that by loosening the clamping bolt *F*, the bracket *M*, and through it, the loom beam *A*, may be raised and lowered as desired, and the parts held in position by locking the screw in the lug *L* by means of the locknut.

A curved arm *S* on flange *N* has hinged on it a beam bearing lever *T*, on the opposite end of which is the upper end of a depending link *U*, which engages flatwise against one of the vertical webs, *P*, in the bracket *M*, through which a clamping bolt extends. The outer face of *U*, it is noted,




is ribbed, to engage with the ribbed face of the clamping piece *V*. A wing nut preferably is used on the clamping bolt, and thus the pressure of the lever *T* on the loom beam may be readily controlled, as with this mechanism the beam will be locked against displacement, and any tendency to jump out of the concave seat will be eliminated.

Thus, it is pointed out, not only is the cost of renewal of the loom beam saved when the usual journal wears out, but wear on the let-off motion is prevented, and wear on the loom frame sides reduced.

The bearing and lock was invented by Oscar C. Wilson, who has sold his interest to Elmer S. Summer, superintendent, Mollohon Manufacturing Company, Fred E. Darby, and Elbert J. Dickert, all of Newberry, S. C., in whose names a patent is issued. BOB (GA.)

A booklet descriptive of the company's service to power plants has been issued by S. F. Bowser & Company, Inc., Fort Wayne, Ind., as one of a series of similar booklets relating to this service to various industries. The present booklet illustrates representative power plants equipped with Bowser storage systems for oils and gasoline tanks, pumps, lubricators, filters, etc.

# Spools that plug profit leaks

An analysis of spooling operations will often disclose an unsuspected loss. This drain on profits is shown by frequent spool replacements, wasted yarn, and unproductive employees' time. It is also revealed in poor quality fabrics and lessened volume of production. These conditions are the fault of the spools.

Ordinary spool heads crack, chip and splinter. The heads often loosen and come off. When the head becomes defective, the spool must be discarded. When heads loosen, the yarn, no matter how expensive, goes with the spool to the junk pile.

The burden of putting yarn in shape for perfect weaving falls upon spooling and warping operations. If the spools deliver knotty and kinky yarn the quality of finished production suffers. The construction of Lestershire *Vulcanized* Fibre Spools overcomes direct wastes and increases the productivity of your plant.

Lestershire *Vulcanized* Fibre Spools will not crack, chip or splinter. The heads are permanently fastened to the barrels. These unusual advantages mean that Lestershire Spools will more than pay for themselves in your plant.

## *Guarantee*

Lestershire *Vulcanized* Fibre Spools are guaranteed.

### Warper Spools for Immediate Delivery

In order to give those of our customers who use standard sized Warper Spools the benefit of immediate deliveries we endeavor to carry on hand for quick shipment a stock of 4x5, 4x5½, 4x6 and 4x6½ Spools.

## LESTERSHIRE SPOOL & MFG. CO.

146 Baldwin St.,
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519 Johnston Bldg.,
Charlotte, N. C.

## Sliver and Ribbon Lap Variation.

In reading through the columns of Cotton in the "How Other Men Manage" section, I note, with interest the question by "L. M. (N. C.)" on what causes variation on sliver and ribbon lappers.

If upon starting up a ribbon lapper you would feel the tension between the calender rolls and large drum rolls you will find it excessive, but as the lap increases in size this tension grows much less until there is little, or no pull whatever. Now while the lap is small it is stretched so that the weight per yard is less, but when the circumference of the lap gets larger, then the weight in grains increases so that when the lap is full there may be a lap weighing anywhere from 6 to 12 grains per yard too heavy.

In explaining this I would say that it is well nigh impossible to keep it even unless some kind of an arrangement could be attached to keep the tension even all through the lap. Bob (Mass.)

## A Cause for Excess Numbers of Knots.

Editor Cotton:

As my first contribution to your discussion department, I wish to discuss a very troublesome item which came up in the January issue, from "S. K. (N. C.)," who is troubled with too many knots in the warps.

In the first place we cannot get along without knots even if the spool is in the work for the first time, but in that case it is harmless. Now, just what brings so many knots together in the radius of a few yards, is the point to find out, and then we must find a way to control them and keep them from being so much trouble. Since we cannot eliminate them, we must control them. It is hard, in the first place, because the warper takes off a standard number of yards for certain numbers of yarn while the spooler tender does not always put on the same number of yards even if there is some device to stop the spools when full.

Take, for example, 13s yarn on a 1½-pound spool which gives 16,380 yards going to the warper, and they take off say 12,000 yards, which leaves 4,380 yards when the spooler tender makes the first knot to re-fill it. But the next time it goes to the warper the 12,000 yards are registered and the spool is again taken out before the knot is reached nearest the 4,380 yards that remain on the bottom owing to the yarn stretching at the warper, and when the number of times is considered that the spools make the trip between the spooler and the warper there must be a lot of knots somewhere. When the work runs for a few days at say 12½s, that is the time the knots have to come out. In coming from the warper the spool has room for only 17½ ounces of yarn, and that yarn is weighing 12½s, which is 11,484 yards which are put on, but on going back to the warper, 12,000 yards are taken off, which means that there has been 516 yards of yarn taken off which is full of knots. As long as there is a standard number of yards taken off at the warper and no compensation for variation of the yarn at the spooler, we must expect the knot trouble.

Spooler tenders taking the spools off a little before the time, warper tenders allowing a spool to remain in the creel when doffing that ran a few hundred yards on the previous beam, and yarn being re-spooled and going in the regular work, are also points to watch. If at intervals the number of yards taken off could be increased to 13,000 and see that all the spools were treated, it would help some. If the work is watched it will be seen that all the warpers beams have the knots on the top and over the slasher first to the bottom of the weavers warp which may be tagged and watched also.

I hope to see in this department the opinions of others on this subject. W. W. S. (N. H.)

Editor Cotton:

In the January issue "S. K. (N. C.)" says he finds too many knots in the warps. I think his trouble is due to the amount of yarn left on the spools. One good remedy is to over run every beam on each warper so as to run all knots found on the bottom of spools. Next, run the spools slightly larger at the spooler so as to leave a larger amount on the spools when the beam is full. Although this is a waste of yarn at each warper, if done only once, it will rid the spools of thousands of knots. Wash (R. I.)

## The Gums in Printing and Finishing.

Editor Cotton:

We recently had some discussion as to the merits of gum senegal and gum tragacanth for printing, finishing, etc.; how they are used and what they are. I am passing along to your readers some information on this subject, thinking it of possible interest.

Gum senegal is sometimes used as a thickener in machine printing, etc. It is produced by *A senegalensis* and differs from gum arabic chiefly by its darker color and larger amount of impurities, such as sand, earth, fragments of wood, etc. It is more likely to turn sour than gum arabic when in a state of solution. Still inferior varieties are met with under the name of Turkey gum, Indian gum, etc. They may vary greatly in quality, some samples being very inferior to average gum senegal, while others can scarcely be called truly soluble in water, as they form ropy masses instead of yielding a smooth, uniform mucilage. The quality of such gums may best be judged by dissolving a small portion in warm water, and noting the texture and adhesiveness of the solution.

Cherry gum is never offered in the market under its own name and is frequently used to sophisticate more valuable kinds. It is generally found in irregular brown lumps, which are hard to break. It forms clotty lumps in water and dissolves slowly and imperfectly. Like tragacanth it gives with a solution of the subacetate of lead, not a white curdy precipitate, but a transparent jelly.

Gum tragacanth is the product of *Astragalus criticus* and is found in irregular flat pieces, threads and lumps white or yellowish in color opaque and scentless and tasteless. In boiling water it is entirely soluble, but in cold water it dissolves imperfectly.

One pound forms as tenacious a liquid with an equal bulk of water as 25 pounds of gum arabic. Its use, however, is greatly limited by its scarcity and consequently high price. The solution of tragacanth in water is only rendered imperfectly turbid by the addition of alcohol, in which respect it differs from true and normal gums.

When sold in lumps it is rarely adulterated, but in the state of powder it is often mixed with gum senegal. This admixture not merely dilutes the tragacanth but positively

# New Pacific Mills *at Lyman, S.C.*

*New Pacific Mills, Lyman, South Carolina. Lockwood, Greene & Company, Engineers; Parklap, Inc., General Contractors.*

## *Built with* Creo-pine Sub-flooring *and* Timbers

The selection of timbers and sub-flooring in cotton mill construction presents a singular and offtimes costly problem.

Because of the high humidity necessary for proper production, fungi or dry rot, as it is sometimes called, quickly destroys unprotected woods. The consequence is sagging floors, expensive replacements, and interrupted production schedules.

These conditions are definitely overcome by the use of Creo-pine sub-flooring and timbers.

Creo-pine sub-flooring is carefully milled from selected, sound, felled-alive, air-seasoned yellow pine, free from defects. It is treated by the S. W. P. vacuum pressure process which first draws out all of the sap and then forces the creosote oil deep into the pores of the wood under tremendous pressure. The result is a sub-flooring that will outlast the building. That will never need replacing.

Your architect or engineer will readily verify the economy of Creo-pine in new construction or replacement if you will consult him.

## Southern Wood Preserving Co.
## Atlanta, Ga.

*Treating Plants* East Point, Ga., *and* Chattanooga, Tenn.

*Sales Offices:*

New York · Philadelphia · Pittsburg · Buffalo
Cleveland · Chicago · Toledo · Charlotte, N.C.

injures it. It may be detected by dissolving a portion of the suspected sample in hot water, and adding, under constant stirring, a few drops of the tincture of guiacum. If gum arabic or senegal be present, even in so small quantity as five per cent, a blue color will appear. The accompanying table will be found useful in discriminating the various kinds of gums.

| Subacetate of lead | Tinc. of Guiacum | Sulphate of Iron | Gums |
|---|---|---|---|
| White Curd | Blue Color | Yellow Precipitate | Gum Arabic |
| White Curd | Blue Color | Yellow Precipitate | Gum Senegal |
| Transparent Jelly | Blue Color | Yellow Precipitate | Gum Cherry |
| Transparent Jelly | No Change | Yellow Precipitate | Gum Tragacanth |

The gums are a class of vegetable bodies possessing no very marked chemical properties and holding a kind of intermediate space between the starches and the sugars. From the former they are distinguished by their solubility and by the circumstance that they are not colored when brought into contact with iodine. From sugars they are distinguished by their inability to enter into true fermentation with production of carbonic acid and alcohol. Unlike the starches and sugars they are also incapable of digestion, and when introduced into the animal system are excreted unchanged. They are insoluble in alcohol, and are precipitated by it from their watery solutions in a state of white powder. A fact which distinguishes them from the so-called gum-resins. W. B. (Maine.)

## Using Sulphonated Oil in Sizing Wet Warps.

Editor Cotton:

I am sorry to learn that "Contributor No. 519" has experienced some difficulties in the use of sulphonated oil as a softener in connection with his size mixture for sizing wet warps. I should have been more explicit in my directions for sizing wet warps in my previous communication on this subject which was published in a recent issue of Cotton.

In recommending the use of the sulphonated oil, I neglected to stipulate that the oil should not be the alkaline salt, but that it should be on the acid side, that is, unneutralized. To explain this clearly, a word regarding the manufacture of this material might be opportune. The production of sulphonated oils is a technical operation demanding considerable skill and experience. Its manufacture requires continued attention, and it is best made on a large scale by plants thoroughly equipped to specialize in this product.

In the case of castor oil, the sulphonated product is made approximately in this manner: 100 parts of a good quality commercial castor oil is treated with 20 parts of 95 per cent sulphuric acid at a temperature not exceeding 30 degrees Centigrade. (At high temperatures concentrated sulphuric acid reacts energetically with all vegetable oils, carbonization and hydrolysis taking place with the production of the sulpho compounds of the fatty acids of the oil. At low temperatures, for castor oil below 30 degrees Centigrade, a true sulphate is formed, and not a sulphonate, as the oil is commonly and erroneously designated.) During the addition of the sulphuric acid to the oil, the whole is well agitated, the operation being carried out either in a coil-containing earthenware, or a lead lined vessel. The temperature is regulated by the circulation of ice-cooled water through the coils or jacket during the whole of the operation.

When the requisite quantity of acid has been added the mixture is allowed to stand for a few hours, after which 20 parts of cold water are slowly added. On further settling the lower layer is drawn off and washed with a solution of sodium sulphate until the washings are neutral. (Washing with water considerably reduces the yield, owing to the solubility of valuable constituents of the fatty acids.)

Generally speaking, sulphonated oils have no constant composition, and *they may be acid or neutral.* In the latter case the oil is neutralized with an alkali after sulphonation, and gives in water a practically colorless homogenous solution. Where neutralization is required, a mixture of ammonia solution and sodium carbonate is used.

Where a sulphonated oil has been treated with alkalis in the manner described, soaps are formed which are very liable to cause foaming where the oil is used as a softener for sizing. The writer omitted to discuss this, and to recommend that *sulphonated oil should be used which has an acid reaction.*

Where sulphonated oil which has been neutralized is being used, the condition can usually be overcome by the addition of acetic acid until there is slight acidification of the oil.

Where size is foaming badly, and it is due to alkalinity or presence of soap, the writer has usually been able to overcome the condition by the addition of some weak acid, such as acetic acid. Where this has failed, the addition of a few pounds of pure tallow will often cure it.

There are any number of conditions which appear to contribute to the foaming of size, but in this case it appears to the writer that the most likely reason is that of an alkaline sulphonated oil, and he has, therefore, answered the enquiry from this angle.

Also, while on the subject of the sizing of wet warps, I would like to suggest to "Contributor No. 519" that he use a higher fluidity starch than 40, preferably somewhere between a 60 and a 90 fluidity.

I hope these suggestions will overcome the difficulty, and in the event that further information is desired, I shall be glad to give any additional assistance possible.

N. P. R. (Ill.)

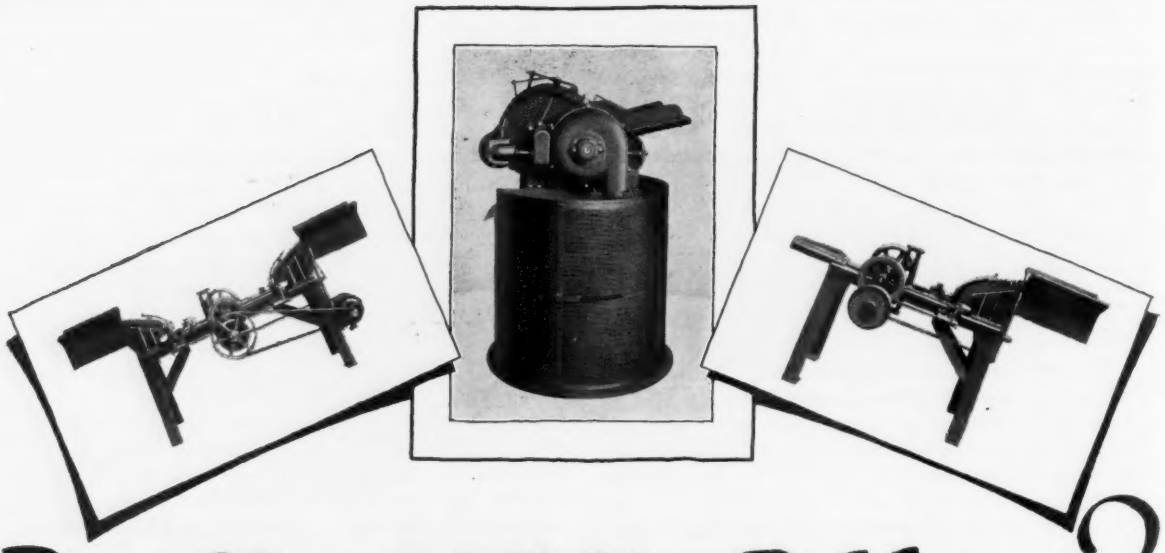
## Spinning Frame Roll Weighting.

Editor Cotton:

While glancing through some of my back numbers of Cotton, the question of "W. S. (Mass.)" attracted my attention. He wished to know whether there are any standards for the weighting of rolls on spinning frames.

I had never heard of any, but to make doubly sure, before replying to him, I searched through all the available sources that I had at hand on spinning frames and rolls. I didn't find what he was after, but I found a problem among some of my calculations that may be of interest to him, and I hope to a large number of other spinners. It is a method of calculating the weight or pressure applied to the rolls by the leverage system of weighting that is used on the spinning frame. A reference to the sketch will make the text somewhat easier to understand.

To find the weight applied on the top rolls when using saddles and levers: first find the weight applied at the



# Does Your Mill Use Bobbins?

*The following announcement, made by Crompton & Knowles Loom Works, is published here for the purpose of giving publicity to the information contained therein:*

Crompton & Knowles Loom Works have disposed of their bobbin stripper business to The Terrell Machine Company, Charlotte, N. C.

The Terrell Machine Company are well and favorably known as builders of bobbin stripping machines for cleaning both filling and roving bobbins.

By the addition of the line of bobbin strippers formerly built by Crompton & Knowles Loom Works, they will now be in a position to take care of an even larger number of cotton and worsted mills requiring bobbin cleaning machines.

*Feb. Cotton*

Whether your mill uses roving or feeler bobbins, there is a machine that will clean them faster, better, more cheaply than they can be cleaned by hand.

The Termaco, for roving bobbins, and the Utsman, for feeler bobbins, are lowering the cost of bobbin cleaning and the cost of bobbins in hundreds of mills in this country, Canada and abroad.

Our Engineering Department will gladly furnish to any mill using roving or feeler bobbins unbiased information as to how a Termaco or Utsman installation will cut operating costs.

Merely write us what kind of bobbins your mill uses, and we will promptly send you data which you will find interesting and valuable to have.

**Engineering Dept.**

**THE TERRELL MACHINE COMPANY, INC.**
**CHARLOTTE** **NORTH CAROLINA**

For the greater convenience of Northern mills, our New York and New England representative, The General Supply Co., of Danielson, Conn., carries a complete stock of Termaco and Utsman parts.

**TERMACO** *for Roving Bobbins*

**UTSMAN** *for Feeler Bobbins*

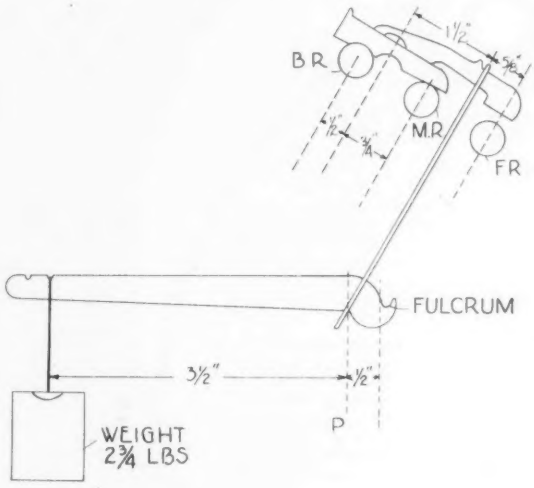
stirrup. To do this multiply the weight used by the length of the long lever, or the distance from the weight to the fulcrum and divide this by the length of the short lever, which is the distance from the fulcrum to the stirrup.

As an example: What will be the weight applied at the stirrup if the weight used is 2¾ pounds. The length of the long lever is four inches with a short lever ½ inch long.

$\frac{2.75 \times 4}{.5} = 22.00$ pounds. This represents the weight applied at the stirrup.

To find the weight on the front roll, multiply the weight on the stirrup by the distance from the stirrup to the back saddle and divide this by the distance from the front roll to the back saddle.

Example. What will be the weight applied on the front roll if the weight on the stirrup is 22 pounds? The distance from the stirrup to the back saddle is 1.5 inch. The distance from the front roll to the back saddle is 2⅛ inches.




$\frac{22 \times 1.5}{2.125} = 15.5$ pounds. This represents the weight applied on the front roll.

To find the weight applied to the back saddle, subtract the weight on the front roll from the weight at the stirrup.

Example. What will be the weight on the back saddle if the weight applied on the stirrup is 22 pounds and the weight applied on the front roll is 15.5 pounds?

22.00 pounds on the stirrup.
15.50 pounds on the front roll.

6.50 pounds on the back saddle.

To divide the weight applied on the back saddle. Multiply the distance from the front saddle to the back roll by the weight applied on the back saddle and divide this by the center to center distance of the rolls. This answer will equal the weight on the middle rolls.

Example. What will be the weight on the middle rolls if the weight on the back saddle is 6½ pounds? The distance from the front saddle to the back roll is ½ inch. The center to center distance from the middle rolls to the back rolls is 1¼ inches.

$\frac{6.5 \times .5}{1.25} = 2.6$ pounds weight on the middle rolls.

To find the weight on the back rolls subtract the weight on the middle rolls from the weight on the back saddle:

6.50 — 2.60 = 3.9 pounds weight on the back rolls.

C. C. (N. J.)

## Georgia Operating Executives Convene.

(*Continued from page* 580.)

better, but from the weaver's standpoint it is better to go down fast. The shock of throwing the shuttle across the loom is what causes it to slough off—it is worse on wide looms than on narrow looms. What makes the filling slough off is where the rail dwells when it changes—it doesn't make any difference whether it is at the top or the bottom."

"I have no weaving at the present time," said Mr. Dilling, who is superintendent of the A. M. Smyre Manufacturing Co., Gastonia, N. C., "but a few months ago we installed a Barber-Colman automatic spooler, and the first thing we learned was about the traverse. The people who make it claim you cannot run filling wind, and on account of the fact that we make ply, wet-twisted yarns, we could not run warp wind. I happen to know now of two or three other mills who are doing what we did then, and I pass it along for what it is worth.

"We adopted a combination wind made with a warp cam and a filling let off. It starts down at the bottom and runs within two inches of the top and makes the same length of stroke from beginning to end, but as it lets off at the bottom it runs up at the top. In view of the fact that this automatic spooler runs from 1,000 to 1,400 yards a minute, we found that the only way we could get results was to run the traverse down slow so that it would unwind up slow. This speed was the cause of our doing this. It unwinds in the spoolers the same as filling wind."

With reference to the "(b)" part of the stated question, Mr. Arnold said that "on filling wind for warp we have had the same experience as Mr. Dilling had. In spinning our warp yarn I ran a few frames on filling wind for a year or so trying to test out for a proper spooling tension, and we finally changed to a combination wind, and we find that this is a lot better on warp because if you have a seven-inch traverse on the bobbin, with the combination wind you will never get over 5½ inches of stroke. We use it on a two-inch ring. It starts winding at the bottom and goes up 5½ inches and as it builds up you get a taper on the bottom and make a taper on the top. When you have completed the wind the bottom stroke lacks 1½ inches of going down to the bottom and is 1½ inches higher at the top. Of course you get the same motion all the way through, and our experience—we changed about four months ago—is that we get much better results, and we could speed up the frame about ten per cent over filling wind. I run two numbers heavier traveler and get eight per cent increased yardage on the bobbin. Of course when you take that to the spooler it will pull off the same as filling wind. We are able to increase our spooler production by increasing the speed there from 800 to 1,100."

Mr. Griffith asked Mr. Dilling how he changed the speed of the traverse with a warp cam and it was explained that

## Increased Production

The treasurer of a representative Southern mill says: "Some time ago we attached Root Pick counters to our looms, which we believe has a remarkable effect upon our weavers. They now run the looms during the noon hour, and sometimes turn them up before starting time, and keep them running after quitting time. This is the principal cause of our increased production."

## Better Production

The weaver knows that an occasional kick will not give him a cent's worth more in tonnage. In this way a more uniform and standard piece of cloth is made, so there is no incentive to kick the pick which causes thin places. This permits you to positively guarantee the uniform quality of your cloth, and that alone is worth the price of the counter.

## Exclusive Advantage

The advantage over "cut mark" or "yardage" method of paying with its uncertainty of guessing and estimating is entirely eliminated when you pay by the pick. The counter has recorded all picks woven and the weaver can be paid any time without loss to himself or to the company. It settles disputes which arise over pay as the weaver can check his week's wages at any time.

## Promote Harmony and Satisfaction

Payment by the pick rewards the workman for the actual amount woven—weavers leaving you can be paid off immediately—accurately—no argument between the crews of day and night shifts is possible.

In each of the above there is a decided extra benefit in permanent harmony and satisfaction among your weavers—it is showing them square treatment.

*The Census Takers of the Textile Industry*

## Incentive to the Weaver

By being able to check his week's wages and knowing what it is at any time, the weaver becomes more interested in his work knowing that he is to be paid more for increasing his individual production. And again no weaver wants to be classed as the poorest workman, so he will exert himself to the utmost in order not to be shown up by his fellow weaver—for payment by pick the Root counter way places them all on a strictly competitive basis.

A NECESSITY TO QUALITY PRODUCTION

ELIMINATES ALL CHANCE OF KICK

# ROOT COUNTERS —in the Textile Mill

Efficiency and Economy in the Textile Industry, as in every industry, depends upon modern Equipment. But why limit that equipment? No present day business would consider doing away with the adding machine. Remember the adding machine starts where the Root Automatic Pick and Hank Counters stop—why not use accuracy from the beginning? To count correctly raw materials and Individual Loom Production and Individual output of each weaver, is the only method by which production costs can be attained from start to finish.

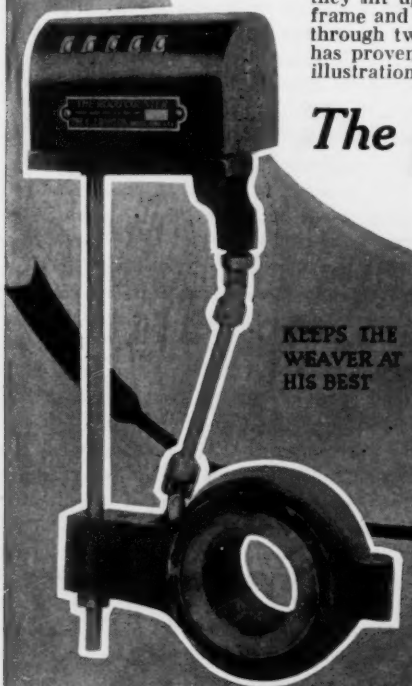
Our Engineers have successfully overcome the obstacle of vibration which heretofore has caused so many otherwise good counters to fail. Direct connection to the moving part of the loom had short life, likewise the flexible shaft, so after much research work they hit upon a plan of attaching a counter to the loom frame and drawing it by worm and gear from a cam shaft through two universal joints and a connecting rod, which has proven to be the most dependable way possible. See illustration below.

THE EYES OF PRODUCTION

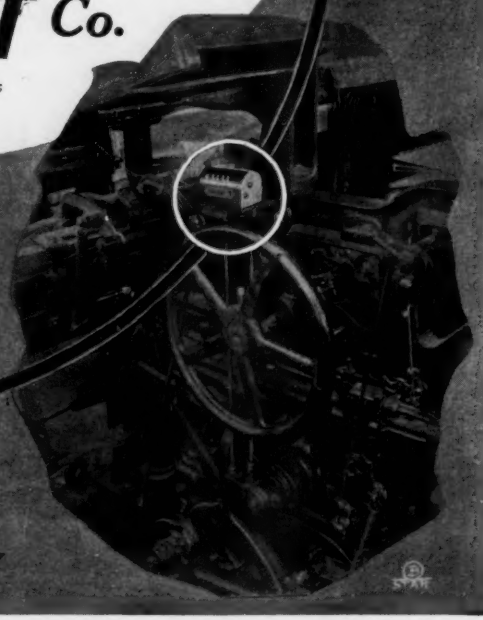
## The ROOT Co.

BRISTOL, CONN.

*W. A. Kennedy,*
*Southern Representative;*
*6 Johnston Bldg.*
*Charlotte, N. C.*



KEEPS THE WEAVER AT HIS BEST



AN INFALLIBLE RECORD KEEPER THAT DRAWS NO PAY

it was a 2 and 1 or 3 and 1 cam and not exactly a warp cam.

"What is the best method of doffers piecing up ends to eliminate tag filling from appearing in the cloth?" was the next question asked by Mr. Dennis. He brought out that the concensus of the replies to the questionnaire seemed to center on the socket piecing method. "In some mills," said Mr. Quinn, "they start the frame up and wrap it around and twist it up. That means they will get a bunch on every bobbin. That is just merely a socket piecing but they twist it up to the bite of the roll."

Another man, Mr. Edwards, mentioned taking the pieces from weaving, with feelers, and using them, and Mr. Dennis summed up the opinion on this point to be either "socket piecing up or, where you have feelers, to take the pieces from the weave room and use these."

Mr. Dennis then put the question—"What is the best method for keeping numbers separated in a mill?"

Opinion on this question varied in regard to the best method, it appearing that the local conditions of the mill and the product manufactured largely determine this. Mr. Hampton, of Fairfax, said they have each spool marked for the different numbers, and that the doffers use certain pieces of chalk in indicating the numbers. Mr. Hampton is at a weaving mill making a wide variety of constructions and changing frequently.

Charles S. Fagan and John D. MacAuley, overseers of spinning at the Standard-Coosa-Thatcher Company, Piedmont, Alabama, explained the system they use, stating that they have ten or fifteen different colors and they paint the bobbins a different color for each number. This is a fine combed yarn mill, with no weaving. They use the colored bobbin and spool system all the way through from the spinning and find it to be most satisfactory. The operatives are taught what number of yarn goes on each color of bobbin or spool, so that any of them can identify a spool or bobbin at any place in the mill.

Mr. Edwards said he uses practically the same system, except that he carries it back to the card room. In order to trace back work to certain spinners, he uses a different mark for this, but the record of numbers is kept by the color system painted on the bobbins and spools. He said further that he has his bobbins painted every five months and spools about once a year.

The other gentlemen discussing this—Mr. Franklin, Mr. Howarth, and others—pointed out that while the painted bobbin and spool plan might be ideal insofar as its operation and elimination of errors is concerned, it would require that they carry too many bobbins in stock in order to provide for the wide range of numbers they must carry for their many constructions.

"What do you do when the whirls become worn and vary in size?" was next asked.

"Put in a frame of new spindles and keep the old ones for replacement," stated Mr. Reid.

"Most mills put in a whole new frame and take these other spindles and repair with them," said Mr. Quinn. "If you mix the new spindles in you will have a variation in twist which is especially noticeable in a colored goods mill."

The last question from the questionnaire was—"Is it good practice to exchange front steel rolls from right-hand to left-hand frames, and vice versa, after the flutes have become worn?" Mr. Dennis explained that the wording did not mean actually left- and right-hand frames, but merely changing the roll so that the other side of the flute would be in action.

"I have known some mills to do that, but you must have the necks in good shape," said Mr. Quinn. Another man suggested doing this when the rolls are re-necked. Mr. Hampton said that he is changing some over at the present time and thinks it a good idea, as the other side of the flute comes into action, but that the necks must be in good shape.

"I don't object to doing it," said Mr. Reid, "but you must re-neck the rolls, and that is expensive and I say buy new rolls."

"But if you re-neck the rolls and re-flute them they are as good as new ones, and it costs about half as much," said Mr. Griffith.

G. R. Brook, superintendent, Mary-Leila Cotton Mill, Greensboro, Ga., brought up the final question—"Is anybody having any trouble with getting bobbins that are not true?" Everyone seemed to be having this difficulty, and Mr. Arnold changed the question to, "Hadn't you better ask if anybody's getting *any true ones at all?*"

This concluded the discussion, and the meeting was adjourned, following announcement from Mr. Arnold that the fall meeting will be held in Atlanta in September, 1925, committees and exact date to be selected and announced later by the executive committee and officers.

## Some Comment on Combers.

Editor Cotton:

Referring to "Caring for Combers," by "Bab. (N. C.)," I would like to go through that again and see if we cannot improve on some of the points he puts in.

Every mill running combers should carry extra half laps in stock, and for every twelve combers (referring to Whitin or Nasmith) there should be at least six spare half laps. A comber to be kept in good condition should be re-set twice a year, and thoroughly overhauled once a year.

Most up-to-date combers have aspirators on them, and there is no need of having cleaning brushes; also there is no covering of cushion plates unless the machines are old.

A good varnish can be made that will stand for at least three weeks. As I go through in detail, I am becoming more convinced that "Bab" is taking his points from an old style comber. Not that I do not think the old style combers are good; they are, and some of them comb better than the latest built machines.

If, when the lap is running out in the comber, the tender straightens out the bunches, there is little danger of the needles getting broken or bent. If you allow a hand to break off the end of the lap I am afraid the re-worked waste is going to be high.

Short singles on the table do not need to be taken from the can, as this is not so much but what the doubling in the drawing will take care of it.

We always figure our production from the hank clock. If we are making a 48 grain sliver, to find the production in pounds per hour delivered, multiply 840 yards by 48 grains and divide this result by 7,000 grains, which gives the pounds per hank.

We are making fine yarns and thread of a very high grade and quality. Carefulness is the watch-word and we very seldom have any serious trouble in the manufacturing.

Bob (Mass.)

A tremendous force controlled by constructional strength plus a more than adequate factor of safety—quick, simple operation and safety guards that are fool-proof—smooth, efficient performance that results from decades of *Specialized* experience—*that is the TOLHURST Extractor.*

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## TABLE OF ORGANIZATIONS

THE FOLLOWING HAVE BEEN MADE AS A GUIDE BUT IT IS NOT EXPECTED THAT THEY CAN ALWAYS BE USED EXACTLY AS EACH PLANT MUST BE FIGURED FOR ITSELF. ALLOWANCE FOR WASTE AND TWIST HAS BEEN MADE IN DRAFTS.

| Yarn Number | Finisher Lap in Ounces | CARDS | | FINISH'R DRAW'G | | SLUBBER | | | INTERMEDIATE | | | ROVING | | | JACKS | | | SPINNING | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Draft | Sliver in Grains | Draft | Sliver in Grains | Double | Draft | Hank | Double | Draft | Hank | Double | Draft | Hank | Double | Draft | Hank | Double | Draft | Hank |
| 6 | 16 | 89.6 | 75 | 6.0 | 75 | 0 | 3.73 | .40 | 2 | 5.15 | 1.00 | | | | | | | 0 | 6.2 | 6 |
| 8 | 15 | 96.5 | 65 | 6.0 | 65 | 0 | 4.0 | .50 | 2 | 5.15 | 1.25 | | | | | | | 0 | 6.6 | 8 |
| 10 | 14 | 98 | 60 | 6.0 | 60 | 0 | 4.1 | .55 | 2 | 5.25 | 1.40 | | | | | | | 0 | 7.4 | 10 |
| 12 | 12 | 105 | 48 | 6.0 | 48 | 0 | 4.15 | .70 | 2 | 5.00 | 1.70 | | | | | | | 0 | 7.3 | 12 |
| 12 | 16 | 89.6 | 75 | 6.0 | 75 | 0 | 3.73 | .40 | 3 | 4.65 | .90 | 2 | 5.75 | 2.50 | | | | 2 | 10.2 | 12 |
| 14 | 12 | 105 | 48 | 6.0 | 48 | 0 | 4.15 | .70 | 2 | 5.00 | 1.70 | | | | | | | 0 | 8.6 | 14 |
| 14 | 16 | 89.6 | 75 | 6.0 | 75 | 0 | 3.73 | .40 | 2 | 4.9 | .95 | 2 | 6.1 | 2.80 | | | | 2 | 10.35 | 14 |
| 16 | 12 | 114 | 44 | 6.0 | 44 | 0 | 4.08 | .75 | 2 | 5.25 | 1.90 | | | | | | | 0 | 8.7 | 16 |
| 16 | 15 | 90 | 70 | 6.0 | 70 | 0 | 3.9 | .45 | 2 | 5.05 | 1.10 | 2 | 6.0 | 3.20 | | | | 2 | 10.2 | 16 |
| 18 | 16 | 89.6 | 75 | 6.0 | 75 | 0 | 3.73 | .40 | 2 | 4.65 | .90 | 2 | 5.75 | 2.50 | | | | 0 | 7.45 | 18 |
| 18 | 15 | 90 | 70 | 6.0 | 70 | 0 | 4.15 | .48 | 2 | 5.2 | 1.20 | 2 | 6.0 | 3.50 | | | | 2 | 10.3 | 18 |
| 20 | 16 | 89.6 | 75 | 6.0 | 75 | 0 | 3.73 | .40 | 2 | 4.9 | .95 | 2 | 6.1 | 2.80 | | | | 0 | 7.4 | 20 |
| 20 | 14 | 98 | 60 | 6.0 | 60 | 0 | 4.1 | .55 | 2 | 5.05 | 1.35 | 2 | 6.15 | 4.00 | | | | 2 | 10.2 | 20 |
| 22 | 16 | 89.6 | 75 | 6.0 | 75 | 0 | 3.73 | .40 | 2 | 4.9 | .95 | 2 | 6.1 | 2.80 | | | | 0 | 8.1 | 22 |
| 22 | 13 | 100 | 55 | 6.0 | 55 | 0 | 4.05 | .60 | 2 | 5.15 | 1.50 | 2 | 6.1 | 4.40 | | | | 2 | 10.2 | 22 |
| 24 | 15 | 90 | 70 | 6.0 | 70 | 0 | 3.9 | .45 | 2 | 5.05 | 1.10 | 2 | 6.0 | 3.20 | | | | 0 | 7.75 | 24 |
| 24 | 12 | 100 | 50 | 6.0 | 50 | 0 | 4.0 | .65 | 2 | 5.05 | 1.60 | 2 | 6.2 | 4.80 | | | | 2 | 10.15 | 24 |
| 26 | 15 | 90 | 70 | 6.0 | 70 | 0 | 4.15 | .48 | 2 | 5.2 | 1.20 | 2 | 6.0 | 3.50 | | | | 0 | 7.7 | 26 |
| 26 | 12 | 105 | 48 | 6.0 | 48 | 0 | 4.15 | .70 | 2 | 5.0 | 1.70 | 2 | 6.1 | 5.00 | | | | 2 | 10.8 | 26 |
| 28 | 14 | 98 | 60 | 6.0 | 60 | 0 | 4.1 | .55 | 2 | 5.05 | 1.35 | 2 | 6.15 | 4.00 | | | | 0 | 7.25 | 28 |
| 28 | 12 | 105 | 48 | 6.0 | 48 | 0 | 4.15 | .70 | 2 | 5.3 | 1.80 | 2 | 6.3 | 5.50 | | | | 2 | 10.23 | 28 |
| 30 | 14 | 98 | 60 | 6.0 | 60 | 0 | 4.1 | .55 | 2 | 5.25 | 1.40 | 2 | 6.2 | 4.20 | | | | 0 | 7.4 | 30 |
| 30 | 11 | 110 | 42 | 6.0 | 42 | 0 | 4.15 | .80 | 2 | 5.2 | 2.0 | 2 | 6.2 | 6.0 | | | | 2 | 10.2 | 30 |
| 32 | 13 | 100 | 55 | 6.0 | 55 | 0 | 4.05 | .60 | 2 | 5.15 | 1.50 | 2 | 6.1 | 4.40 | | | | 0 | 7.5 | 32 |
| 32 | 11 | 116 | 40 | 6.0 | 40 | 0 | 4.2 | .85 | 2 | 5.1 | 2.10 | 2 | 6.35 | 6.20 | | | | 2 | 10.6 | 32 |
| 34 | 13 | 100 | 55 | 6.0 | 55 | 0 | 4.05 | .60 | 2 | 5.15 | 1.50 | 2 | 6.2 | 4.50 | | | | 0 | 7.8 | 34 |
| 34 | 11 | 116 | 40 | 6.0 | 40 | 0 | 4.2 | .85 | 2 | 5.1 | 2.10 | 2 | 6.4 | 6.50 | | | | 2 | 10.4 | 34 |
| 36 | 12 | 105 | 48 | 6.0 | 48 | 0 | 4.15 | .70 | 2 | 5.0 | 1.70 | 2 | 6.1 | 5.00 | | | | 0 | 7.4 | 36 |
| 36 | 10.5 | 116 | 38 | 6.0 | 38 | 0 | 4.25 | .90 | 2 | 5.3 | 2.30 | 2 | 6.4 | 7.00 | | | | 2 | 10.3 | 36 |
| 38 | 12 | 105 | 48 | 6.0 | 48 | 0 | 4.15 | .70 | 2 | 5.15 | 1.75 | 2 | 6.1 | 5.20 | | | | 0 | 7.6 | 38 |
| 38 | 10.5 | 116 | 38 | 6.0 | 38 | 0 | 4.25 | .90 | 2 | 5.3 | 2.30 | 2 | 6.4 | 7.00 | | | | 2 | 11.3 | 38 |
| 40 | 13 | 100 | 55 | 5.5 | 60 | 0 | 3.70 | .50 | 2 | 4.55 | 1.10 | 2 | 5.3 | 2.80 | 2 | 5.9 | 8.0 | 2 | 10.3 | 40 |
| 50 | 13 | 100 | 55 | 6.0 | 55 | 0 | 3.75 | .55 | 2 | 4.5 | 1.20 | 2 | 5.2 | 3.00 | 2 | 6.9 | 10.0 | 2 | 10.3 | 50 |
| 60 | 13 | 100 | 55 | 6.0 | 55 | 0 | 3.75 | .55 | 2 | 4.5 | 1.20 | 2 | 6.0 | 3.50 | 2 | 7.1 | 12.0 | 2 | 10.3 | 60 |
| 70 | 13 | 100 | 55 | 6.0 | 55 | 0 | 3.75 | .55 | 2 | 5.25 | 1.40 | 2 | 6.2 | 4.20 | 2 | 6.9 | 14.0 | 2 | 10.3 | 70 |
| 80 | 12 | 100 | 50 | 6.0 | 50 | 0 | 4.0 | .65 | 2 | 5.1 | 1.60 | 2 | 6.2 | 4.80 | 2 | 6.9 | 16.0 | 2 | 10.3 | 80 |
| 90 | 12 | 105 | 48 | 6.0 | 48 | 0 | 4.15 | .70 | 2 | 5.3 | 1.80 | 2 | 6.3 | 5.50 | 2 | 6.7 | 18.0 | 2 | 10.3 | 90 |
| 100 | 11 | 102 | 42 | 6.0 | 42 | 0 | 4.15 | .80 | 2 | 5.2 | 2.00 | 2 | 6.2 | 6.00 | 2 | 6.9 | 20.0 | 2 | 10.3 | 100 |
| 110 | 11 | 116 | 40 | 6.0 | 40 | 0 | 4.2 | .85 | 2 | 5.1 | 2.10 | 2 | 6.4 | 6.50 | 2 | 7.0 | 22.0 | 2 | 10.3 | 110 |
| 120 | 10.5 | 116 | 38 | 6.0 | 38 | 0 | 4.25 | .90 | 2 | 5.3 | 2.30 | 2 | 6.4 | 7.00 | 2 | 7.1 | 24.0 | 2 | 10.3 | 120 |

## Avoiding Reed Marks on 3-Harness Twill.

EDITOR COTTON:

In regard to reedy appearance in three-harness twill, as brought up by "R. O. (S. C.)," I would say that to reverse the harness and run one up and two down might help some. This would weave the cloth face down. But I would prefer leaving the harness two up and one down with the following settings:

Raise the whip rail, and breast beam, too, if necessary, so that the warp line—that is, a straight line from the breast beam to the whip rail—will pass about half way from the center to the top of the shed with the shed open to its fullest extent. Or in other words, let this straight line pass about one or one and a half inches above the eyes of the harnesses that are changing, when they are level. Then in setting the harness, see that the bottom shed is pulled down close to the race plate.

These settings cause the top shed to be a little slacker than the bottom, thus allowing the ends of the top shed to spread out more between the ends of the bottom shed, tending in itself to eliminate the reedy appearance. But it also has another advantage in that it forces the filling more to the top of the cloth because of the bottom shed being tighter than the top. This of course will put a slightly greater strain on the warp yarn and care must be taken to

*Can you solve this puzzle?*

To the Superintendent or Bleacher
who addresses us correctly
and sends us the solution of
this puzzle together with the
characteristics advertised
for many years
we will send a useful
and welcome novelty

Mention No. 12

slash it in the very best manner possible.

Another advantage to the cover on the cloth is to set the harness cams so that the harnesses that are changing will be level when the crank shaft is on bottom center. This, I believe, is called an early timing of the shed. Its advantage to the face of the cloth is that it gives a little more chafing to the warp by the filling having to be pushed or beat up farther after the shed has crossed and as the shed is wide open as the filling is beat up in the fell of the cloth it helps in the filling being forced to the top of the cloth.

Another setting advantageous to the cover of the cloth is to run a filling yarn with as soft twist as possible, as the softer the filling, the smoother it will beat up.

If anyone knows anything better, or if changing the harness to one up and two down has any decided effect, I would like to read their ideas in COTTON, as I am eager to learn more myself. JACK (TEXAS)

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EDITOR COTTON:

Replying to the recent question propounded by "R. O. (S. C.)," in the first place, there is a lack of information inasmuch as one should have the width, sley, picks and yarn counts. However, this would not make a particle of difference to the main question, which is, would it make any difference to the reedy appearance to change the cams from 2 up and 1 down to 1 up and 2 down.

I would suggest that if he has not done so, to put the whip roll up and set his harness with the reed about 2 to 2½ inches from the fell of the cloth when the harnesses are level at the passing point. One other thing which is very important is in trying to make a good cover or to avoid the reedy appearance is in the reed. This cloth is very light and the chances are it may be that he should use a reed and run two ends in a dent.

I know your inquirer will not like this idea as it has a tendency to make wrong draws in the reed, but I have had several 3-harness twills on which I used 2 in dent to avoid the reedy cover. This does not seem to me to be very much information, and if it does not fill the bill, if he will give me the information as stated above, I will see if there is anything else I can do for him. O. W. (GA.)

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An advertiser spends his money because he thinks he has something which will be of benefit to certain of our readers. But it is always a question with him whether the announcement will be seen. If not seen the reader will not be informed and the advertiser wastes his money. Many devices have been adopted to attract the reader's attention, such as large displays, colored inserts, marginal embellishments, pictures, etc. But even if these are noticed by the man to be attracted he may not be ready to act upon the invitation extended by the announcement.

An old friend, whom we must not name, has hit upon the idea of forming a picture puzzle of his advertisement and offers a reward for its solution if accompanied by a description of the characteristics of the advertised article.

To make it still more puzzling the advertisement is not signed; but since the subject matter is identified with the manufacturer who has been before the textile trade for twenty years and by reason of his uncommon style of advertising is known to all our readers, this part of the puzzle should present no particuler difficulty.

## Weaving Artificial Silk.

Editor Cotton:

Artificial silk may readily be called the radio of textiledom. The rapid rise of this chemical fiber industry during the past few years has been almost phenominal. With the development of artificial silk, there have come problems in the manufacture and utilization of the fiber which have been successfully met and answered, although there are still a number of difficulties to be encountered.

This is particularly true of the weaving operation. The operator probably wastes more abusive words on artificial silk than on any other fiber that he is called upon to weave. However, there is positively no need for any aggravation if the material is handled with due care and given to the weaver in the proper condition. Incidentally, the weaver himself is not immune to responsibility for poor results in the use of artificial silk.

Perhaps the main point to be considered, not only in the weaving but in all operations, is the use of proper tensions. It is not uncommon to find that one or two ends of an artificial silk warp persist in drawing slackly off the beam, thereby causing the drop wires to fall and stop off the loom. The weaver quite naturally does not allow this to occur many times before taking steps to correct the trouble. His remedy is simple. He breaks out the slack end, hangs a bobbin of artificial silk from the loom frame and ties in this end in place of the slack one. The latter is then run with the selvage or is carried over the loom and into the roll of woven cloth. However, the true remedy should deal with the cause for the slack end. Uneven tension in the beaming operation is the primary cause for these slack threads. All bobbins which are used to make up the warp should be alike as nearly as possible in regard to weight and diameter, otherwise uneven tensions will result.

The question of humidity should not be overlooked, a dry atmosphere being preferable in all processes where the handling of artificial silk is involved. Too humid an atmosphere in the warping operation causes slackness and sag, resulting in uneven tensions across the entire warp.

In a silk stripe, when a warp contains comparatively few artificial silk ends, the latter are wound on the same beam as the cotton. From the weaver's viewpoint this is impractical for the take-up of the artificial silk ends is not as great as that of the cotton and again the difficulty of slack threads is encountered with repeated stopping off of the loom. Where the number of ends of artificial silk is not great enough for a separate beam, it is preferable to run these ends from spools or bobbins placed on a rack at the back of the loom.

Split ends are another source of trouble. When these come up in back of the harnesses and drop wires, they have been caused in some previous operation by a rough guide. The guides become worn and roughened by the constant wearing action of the running yarn and the rough spots so produced tend to cut the filaments of the artificial silk strand. All guides should be perfectly smooth. Split ends occurring between the harnesses and the reed are caused either by a rough harness eye or by a rough reed wire. These faults are overcome by removing the rough heddle and inserting a new one or by rubbing down the reed wire with emery cloth. A rough spot on the race plate of the loom will also cause cutting of the filaments. All machine parts which come in contact with the artificial silk should be kept perfectly smooth and clean and inspection should be made to see that these parts do not become roughened as any surface irregularity is very detrimental to the artificial silk end.

Sometimes a bad spot occurs in the cloth due to a weaving defect and it becomes necessary for the weaver to pick out the bad place. The ordinary pick-out comb should not be used on artificial silk as the sharp points of the teeth tend to split the warp ends, making it very difficult to obtain a good start-up. The proper instrument to use is a celluloid pick having a single and rather blunt point which does not damage the artificial silk ends.

Shiny picks are another type of defect and blame for these may be placed either on the quiller or the weaver. Responsibility may be laid to the quiller when the artificial silk, in drawing off the quill, catches on an obstruction which lies in the wind of the yarn. Usually the obstruction is a knot in the strand. The latter is stretched when it hangs on the knot and as artificial silk has no contracting properties, a tight pick is caused which shows as a bright streak across the cloth. When an end breaks the quiller should tie a small knot in such a manner that it will lie in an external wind on the surface of the full bobbin or quill. By so doing, the yarn will not catch in drawing off. Knots should be made as small as possible so as to pass freely through the shuttle eye. The weaver himself makes shiny picks by the manner in which he clears the selvage of ends after changing bobbins. When the operative throws in the shuttle containing a fresh bobbin of yarn, there are generally two strands left projecting from the edges of the cloth. A careless weaver takes these ends between the thumb and forefinger of his hand and gives them a quick yank, breaking the strand at the selvage. However, in so doing, he stretches the artificial silk and produces a shiny pick which extends half way across the fabric. The weaver should be cautioned not to do this but to cut the projecting strands with his scissors or knife.

Frequently a number of winds of filling will draw off the quill simultaneously forming a "snotty-nosed" bobbin. The cause for this may be too steep an angle of wind, the layers of filling forming an angle too near the perpendicular with the quill. However, a "snotty-nosed" bobbin is more often caused by either too strong a picking motion of the loom or by the rebounding of the shuttle due to insufficient pressure by the binder of the shuttle box. These troubles are easily remedied by adjustment of the lug strap on the picker stick or by a turn of the binder screws. Artificial silk should be cross wound on the quill thereby rendering it more difficult for the coils to slip off.

A weaver should use care in starting up his looms in the morning after they have been idle over night or over the week-end. Due to the change in atmospheric conditions during the period of shut-down, the material on the loom expands or contracts according to whether the humidity has been higher or lower than running conditions and results in a thick or thin streak across the fabric upon the starting of the loom. The weaver can overcome this by turning the pick gear one or two notches forward or back as the case may require.

The filling should be properly tensioned so that the pick is neither too tight nor too slack. Best results are obtain-

# Confidence

THIS practical age looks for results. What value then should be placed on confidence in the light of the magnificent record it inspired on the far away rim of the Arctic Circle?

The dash to Nome—a message for Garcia—merely dramatize what is taking place around us every day. Projected on the larger screen of industry confidence is whirling the wheels of civilization a little faster, to the benefit of the individuals who employ it.

Your confidence in R & H—the organization and its chemicals—inspires us to set new industrial records.

R&H CHEMICALS

*A partial list of R & H Chemicals—together with price changes and comment on special market features—is published each month. This list includes chemicals used by the consuming industries. It is used regularly by many as a guide in the purchase of material. We shall be glad to include on the mailing list the name of any one interested.*

43rd Year

The ROESSLER & HASSLACHER CHEMICAL CO.
709 Sixth Avenue, New York

ed by using a so-called silk shuttle which has a specially constructed eye by means of which tension on the yarn may be positively regulated. The shuttle should also be lined with a hairy wool felt or similar material to obtain additional drag.

Cut filling sometimes becomes an aggravation to the weaver. The cause for this may be found in a rough place on the shuttle. In such an instance the filling may be cut at any point in its traverse across the warp. Sand-papering the rough spot smoothes out this difficulty. The weaver should, by the way, keep close watch over his shuttles and inspect them daily as a rough shuttle not only causes cut filling, but often results in a bad breakout of warp ends. When the cut filling occurs at the selvage of the cloth a rough place on the shuttle guide may be found to be the causing factor. Filing the guide will stop the cutting, but the weaver generally resorts to the simpler and quicker method of tying a piece of cloth through the binder opening and around the guide.

Another point not to be overlooked is the sand roller which is used in taking up the cloth as it is woven. Too coarse a sanded covering will roughen the artificial silk and even break the filaments. It is obvious that a perforated tin roller cannot be used at all.

By way of summation, it may be said that the main points which should receive careful attention in the handling of artificial silk not only in the weaving but in all other operations as well, are correct tensions, proper atmospheric conditions, and smooth machine parts that come in contact with the artificial silk strand. A. W. (Mass.)

## Reducing Waste Made at the Slasher.

Editor Cotton:

In visiting different mills, I naturally see a great variety of practices in laying in slasher sets, and it is amazing the amount of waste that some seem to think unavoidable in getting a set started up. As much as five or six pounds may be cut off before the first loom beam is started to fill.

If comment is made, the answer is that it takes that much to get a smooth, even sheet, and perhaps it may if no thought is given to the matter of waste, but it seems extravagant to practicaly throw away two or three dollars worth of perfectly good yarn that is almost ready to weave, and if a systematic effort is made to save this waste, it can be saved.

Where this large amount of waste is made, it is the practice in cutting a beam off the warpers, to divide the sheet up into five or six "dog tails," and tuck these under the warp, gathering up a few strands for the purpose. When the beam is laid in with the set, these ends are gathered up, about half on one side and half on the other, and the division of the warp is such that several yards may have to run off before the sheet is even and smooth.

Also, in handling beams, the ends may come loose and get snarled up, or careless help may break yarn in tucking these ends in to keep them in place.

In any event, a few yards have to be run through to straighten the sheet before the lease can be picked, or the comb set. Here also is a highly variable practice. Some very coarse and very fine mills on plain work will simply strike the warp with a comb, taking the comb out just behind the immersion roll so that the division of the yarn will be set by the starch and the resultant tapes can be placed in the comb on the front of the slasher. Other mills will set the comb in place and draw it through over the cylinders to the front, where the expansion comb may simply strike the sheet. Others will count in a lease either on the back of the slasher or the front, and lay the ends in the expansion comb accordingly.

From observation of a large number of methods, I would like to suggest a combination that seems to give excellent results from the standpoint of waste saving and neatness, as well as speed in laying in sets.

In doffing warper beams, a heavy gummed paper tape is put on both sides of the warp before cutting; the two gummed sides of the tape being glued together with the sheet of warp between them. A good, heavy paper should be used, and it is necessary to double the tape. Simply sticking the gummed paper down on the beam on the outside, is not so good, as this makes it hard to get the paper tape loose again, and the ends of yarn are not so firmly held.

If the tapes are put on before the sheet is cut, the ends are properly spaced so that a smooth sheet can be had at any time by pulling the taped edge out firmly. After taping in this manner, the beam can be cut out of the warper and the taped edge may be held in place on the beam either by sticking it down in two or three places, or by tying three or four strings around the beam.

When a beam thus treated gets in the slasher creel, there is no waste whatever in getting a smooth sheet. On coarse yarn, simply pulling the taped edge tightly and shaking it smartly will smooth out the sheet, and on fine yarn or high plied yarn, where the ends twist together easily, a comb may be run through the warp from the beam out to the taped edge to smooth out the sheet in case some twisting together has occurred.

When the set has been drawn in as far as the size vat, all the paper tapes should be placed together, and a comb stuck in behind them. Turn the comb over two or three times to wrap the yarn firmly around it, and tie on the ends of the old set to pull in the new one, tying to the comb, which should be heavy enough to stand it. This will pull in a perfect sheet of yarn with almost no waste. The squeeze rolls and immersion roll can be set as soon as the comb is tied on, and if the work has been done carefully, the only waste will be a yard perhaps, reaching from the comb back to the immersion roll.

If a lease is to be counted, count it on the back of the slasher before lowering the immersion roll; running a tape through the warp with a bodkin to fix the lease so that it may be quickly laid in the expansion comb when the tape reaches the front.

This method is entirely practical, though not quite so rough and ready as some in use. It requires some care on the part of the man who doffs the warpers, and some care also on the part of the slasher tenders, but with this small amount of care, a set can be laid in quickly and with surprisingly little waste.

The most important points to watch are; first, getting the warp taped right on the warpers with heavy, stiff tape that will hold each end of yarn in place; second, binding the taped edge down to the beam so that there will be no slack to allow twisting of the yarn; third, always keeping

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the taped edge pulled tight when drawing off on the slasher to lay in. If these points are observed, the sheet is always kept in perfect condition, without twisting or snarling. I. C. (Mass.)

## Keeping Numbers Even.

Editor Cotton:

The article in the February number of Cotton by Mr. Touchstone, "Keeping Numbers Even," is very impressive and scientific. One would be inclined to doubt such accuracy were it not for the fact that full publicity was made at the Carders' meeting in Greenwood, S. C., and that he made his statements personally. I imagine his article will be read and criticized by a large number of Cotton's readers.

I have always contended, and Mr. Touchstone's article strenghtens my contention, that artificial humidity is not necessary in the picking and carding departments, and even further, in the preparation, it should only be added very judicially. When the fly frames are reached and twist is applied to the strands of sliver, increasing the amount of twist at each subsequent process until the jack is reached, then is the time to apply the moisture. It is then when the moisture does its full duty, that of laying the fibers in close proximity to each other that the whole of the fiber receives the twist applied, thus giving the roving the desired strength. Also, less fly and invisible waste will necessarily occur at the spinning process.

That humidity will affect the numbers is fully recognized, and as we know, mills all have a somewhat different method of combating either excessive or too little humidity at any process to hold its numbers, and the method that Mr. Touchstone has conceived and proven to his own satisfaction is admirable and will stand investigating further. The sizes of his warp yarn varied only a half a number either way, his average number being 28.99s.

For my own personal profit, I calculated the average size on the beams and I got the following:

| Beam | Weight | Size |
|---|---|---|
| 1 | 393 | 29.59 |
| 2 | 395 | 29.44 |
| 11 | 396 | 29.36 |
| 8 | 397 | 29.29 |
| 19 | 398 | 29.22 |
| 20 | 399 | 29.14 |
| 21 | 400 | 29.07 |
| 11 | 401 | 29.00 |
| 8 | 402 | 28.93 |
| 5 | 403 | 28.85 |
| 4 | 404 | 28.78 |
| 3 | 405 | 28.71 |
| 2 | 406 | 28.64 |
| 1 | 407 | 28.57 |
| 116 | Average size, 29.17s. | |

This, to my mind, is an excellent proof of the system under discussion.

Mr. Touchstone tells us he is on the job himself and looks after these things. I am convinced he is on the job throughout his room; also, he must have some very efficient help.

Another article in the same issue written by "T. B. (Mass.)" is a very thoughtful one. However, his idea regarding conditioning the prepared lap I do not think could be done, even if the lap were bone dry. Should such a method be tried I imagine the lap would have a very great variation, yard for yard, owing to the construction of the lap. The moisture could not be evenly distributed.

"T. B." entertains some very thoughtful points, though they may be hard to achieve, and may be tried by some of the readers who are in a position to do so, but I feel assured that when "T. B." reads Mr. Touchstone's article he will feel as I do, very much enlightened on keeping numbers by strict attention to the picker room and scientific application of what a lap should weigh in a variable humid atmosphere. Christy (Mass.)

## What Does It Cost to Comb Cotton?

Editor Cotton:

Will you kindly have one of the readers of Cotton inform me through its pages as to the cost of combed yarn over carded yarn, both using the same stock or, in other words, how much the combing process costs per pound?

Y. S. (R. I.)

## Why Comb Boxes Give Trouble.

Editor Cotton:

Every now and then some superintendent makes a big howl about the comb boxes on his cards. This is often justified, for it is a common thing to go into a mill and find comb boxes so hot you can hardly put your hand on them, with pools of oil on the floor. Another cause of worry is the fact that the comb will crystallize and break, just where it goes into the box, causing an undue expense here.

I believe this crystallizing of the combs is due in a large extent to the high speed of the comb pulley, which usually is about 1,850 or 1,950 revolutions per minute. This speed, I believe, is unnecessarily high, and some time ago I carried out an experiment which I have adopted and which I will tell you about now for the benefit of your readers who may be having difficulty with their comb boxes.

I formerly ran my doffer comb pulley at the regular speed of 1,850 or 1,950 r.p.m., and I would experience great difficulty, at the time of putting on a lap, by having the cotton run on over the doffer, clogging up and facing the clothing. This became so serious and expensive that I set about to remedy it, and while I did what I did to correct this, I found that I received other benefits just as helpful.

As you know, the comb is given its up and down motion or stroke by means of an eccentric mounted on a shaft driven by means of the scored pulley, which is driven by a band from the slow motion pulley. This eccentric operates the oscillating lever, which is secured to the end of the doffer comb. As the eccentric revolves it thus imparts the motion to the comb.

In watching the cotton crawl up and jam the doffer, I concluded that the reason it got by the comb was that the comb had what was practically a vibrating motion, rather than a combing action.

The first thing I did was to order a smaller pulley to operate the eccentric shaft, which brought the revolutions per minute of the shaft down to 1,200. Then I asked the machinery people to send me an eccentric on which the throw of the eccentric had been increased sufficiently to cause the comb to have a stroke of about 1¼ inches.

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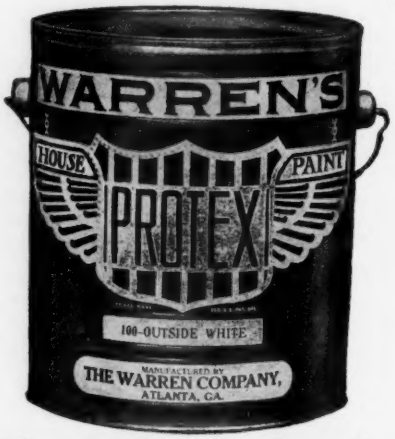


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This is all I did, and it has worked wonders for me. As I say, I did it in order to remedy one condition, which it did, but I also found that I secured other equally profitable results. The former high speed of 1,850 wore out an excessive number of comb bands, and when I cut down the speed I saved quite an amount on this item. Furthermore, crystallized comb shafts are practically a thing of the past, as the lower speed will not cause this trouble. The lengthened eccentric gives me a stroke of slightly over an inch on the comb, and I have no more trouble with faced doffer clothing resulting from cotton running past the comb and jamming.

Some people might think the lower speed would not keep up with a large production on the card, but I will say that I run the 28-inch doffers on my cards at about 12 revolutions per minute, and I am not experiencing any difficulty. Of course, it would be possible to cut the speed too much, but I am of the opinion that most mills are running their combs far in excess of what actually is necessary.

My comb boxes never run hot.

I might say in addition that we have a rather different method of oiling the comb boxes. Our oilers have a piece of flexible metal about an inch wide. While the cards are stopped, they stick this gauge down into the comb box. If the oil level is 1½ inches, they do not add any oil. If it is less than this they put in enough oil to bring it up to this level. I believe most mills oil their comb boxes too much. This usually is done while the machines are in operation, and the oiler generally puts oil in until it splashes out. I believe this is where he is misled, because the revolving parts will fling the oil up, making the oiler think it is full when it isn't. Furthermore, I do not believe it necessary to carry more than 1½ inches of oil in the comb box, as this is all that is required. I might say that I oil my comb boxes every two weeks—and I'll bet most men don't wait that long!

I submit these findings for the help and interest of your readers. D. D. W. (Ga.)

## Detecting Causes of Speeder Smashes.

Editor Cotton:

The article in the February issue of Cotton, entitled "Causes of Speeder Smashes and How to Detect Them," I thought was a good subject to bring up.

In the first place, the thing to look at is the speed. High speed is one of the greater causes of speeder smashes. In some mills there is very little trouble about speeder smashes, and in other mills speeder smashes are as common as the weather.

In a mill where they use good judgment concerning the speed of their machinery, they have less smashes on the speeder than any other machine in the mill. In a mill where the card room has about half as many speeders as they ought to have, that is the mill that is giving all the speed possible, and the result is two or three speeder smashes a day.

There is one common cause for speeder smashes. Some makes of speeders are built for speed and will stand more abuse than other makes. Some speeders are built with cut gears and we all know that a cut gear will stand more load and speed than a cast gear.

Frequently a smash can be caused by a poor fixer. A fixer must at all times be on the job and he must teach his help to notify him at once if a nut or bolt or set screw is found loose or out of place.

Another big factor in speeder smashes is a poor oiler, and when I say that I am saying a whole lot, because with the speed we have now-a-days we certainly need a very competent man for that job, not only to prevent a smash on the speeders but to prevent fire, and wear also. Of course if a part gets dry and wears there is sure to be trouble later on, especially with the fast motion. When a fixer works on a speeder he must make sure that he fixes it right and he will not be bothered with the same thing in a day or two. A good motto to go by is to fix, and fix right. Many speeder fixers, when they have a speeder smash, do not take the time to do a good job, the result being that in a day or two down go the ends and there is another smash, whereas, if they would take a few minutes more and fix it right, the chances are they would not be bothered with that speeder again for sometime.

If a fixer gets a whole room full of half fixed speeders on his hands he might just as well put his tool chest on wheels and make his daily visits to his speeders. Now as I have said before in this article, cut gears are the thing for speeders, especially for all the fast motions. For all the slow motions such as the rack and lifting shaft and others, a cast gear will work okeh. Also spindle gears and bobbin gears. Those gears run very fast, but they do not have the load to carry that the fast motion has in the head end gearing and are not so likely to smash.

Now for the other question, "How to detect a smash." It is an easy matter to find the big things. The little things are the ones; they are the most difficult to locate, especially for a young fixer. Anyone can usually tell by the condition of the ends what the trouble is and can detect it from those conditions. Say, for instance, the ends all curl at the nose of the flyer. Now there are a few things that one can look to for that trouble; one is in the compound gears. They may be worn or the teeth may be broken out or the cone belt may be broken; the top cone may be loose, but on some speeders this trouble seldom occurs, as they are made in such a way that it is almost impossible for it to get loose. However, there are few more left of the old type with three set screws in each end which will work loose and cause all the ends to curl at the flyer. Again, the cone belt may slip. It may be too long and the whole weight of the cone is not on the belt. A good endless double belt about two inches wide is the best for a cone belt. Some prefer a narrower belt, but not for me. I have had the best results with two-inch double belting for cones. Cone trouble is a bad deal. If a belt breaks, down goes the ends, and when they go down it means a whole lot of pieces and also a loss in production.

While talking on the cone question there is one more suggestion that I wish to make, and that is, try painting the top and bottom cones. There is a paint on the market which is used on pulleys to keep the belt from slipping and it works fine on cones. It forms a rough surface and keeps the cone belt clean and free from dirt and waste at all times and lasts long enough to pay for putting it on.

Should a bunch be found on all the roving of course the first place to look would be in the traverse motion. By seeing the bunch on the roving, naturally there must be something wrong with that part of the machine, because the

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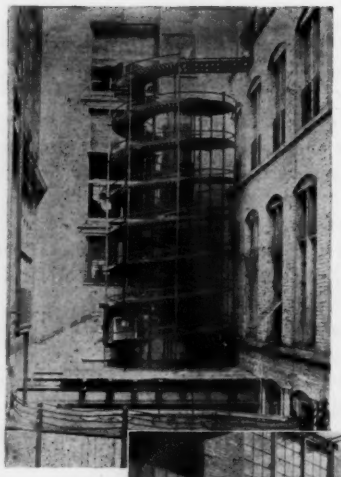

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motion does not run and something is loose or broken there, depending upon the make of speeder as to just what and where it is. Another cause of speeder smashes is on account of the speeders not being level. They should be leveled every year or two, and oftener on a poor floor, because by being out of level they run hard and cause the gears to wear and break.

One of my experiences as a fixer was at a mill where the speeders were pretty well "shot." One speeder was making cut roving, not on all the spindles but a few bobbins would come back from the spinning room about every day. Of course I could tell by the mark on the roving just what speeder was causing all the trouble. I started to look that speeder over, and in a short time detected the trouble. I stood by the machine and watched, and seeing a cut place in the roving I stopped the speeder and took out the front steel roll and inspected the necks, where I found the trouble. Four roll lengths from the foot end of the speeder the neck was worn nearly round, and the square nearly the same, causing the neck to slip every now and then, making a few cut rovings. I at once put in a new front roll and that trouble was corrected.

It is important to have the steel rolls in first-class order and to see that they are running straight and the necks are in good shape. They must run free and even to make good roving and not cause the gearing to wear and break. Too much attention cannot be paid to speeders. Things will slip and make a whole lot of trouble before being noticed. Sometimes the ends will break at the presser. What will cause that trouble? One thing which will cause it is the gear coming out of place and not moving the rack at every change. The pin that holds the gear may be broken, depending of course on the make of speeder, some are held by a pin and some are held by a nut. Again, there are other causes for this. The tension may be tight, and by changing the tension gear it will stop this trouble. Not enough twist will also cause the trouble. Don't think for a minute that you can run standard twist always, because it all depends on the quality of cotton. If when figuring for a twist gear it figures a 30 gear put on about three teeth less and the results will be surer and it is best for the work.

One other cause of ends breaking at the presser, and which usually shows up right after the doffing, is a small bobbin and a large bobbin here and there on the spindles. This is a hard proposition to overcome, unless the bobbins are sorted out and the badly worn and small bobbins are thrown away. How many times I have experienced this trouble! If the company the reader is working for is too poor to buy bobbins then he will have to make the best of it and remedy the trouble as best he can. In that case, I usually start the ends as loose as possible, and after a while the very loose ones will tighten up as they are filled.

Tension trouble will usually show up in "dog-day" weather—days when everything shows up in the carding department. If half the ends curl at the nose of the flyer, it would be best to look for a loose coupling gear, either on the bobbin shaft or spindle shaft. Sometimes I overcome that trouble by putting in a key with good cupped set screws. One coupling gear at the head of the bobbin shaft kept getting loose; I put in a key and have never heard from it since. That was about the year 1920. This is the way to check trouble. When it is checked it should be checked permanently, and the position of the fixer will be much more pleasant; it will be cheaper for the company and there will be more production.

Experience (Conn.)

## Elastic Finish on Cotton Cloth.

Editor Cotton:

Attached hereto is a sample of cloth finished in what is called an elastic finish. If any of your readers are familiar with how such a finish may be secured I shall be glad to have them describe their methods in the "How Other Men Manage" section of Cotton. I assume that this elastic finish is secured principally through the vibratory motion on the tentering machine. I may be mistaken in this, but that is my opinion. If there are other ways of securing it I would also like to know about them.

A. C. (Wis.)

Editor Cotton:

Replying to "A. C. (Wis.)" would say that all the light shades (i.e., other than blacks) must be well bleached in the first instance, then mangled and starched dry something like this:—Dextrin, 200 pounds; corn starch, 80 pounds; cocoanut oil, 1 pound; glue (comminuated and then dissolved in hot water), 10 pounds. Water sufficient to make, when boiled, 100 gallons. Boil for fifteen minutes. Run once or twice after filling. The cloth is stretched on a clip stretching machine and then it is dried on a 1,000-foot tenter, or it is tentered as follows: After filling, the cloth is passed over a short drying machine, then over the pin tentering machine, using the short jig motion. It is usually starched once or twice on a usual two-bowled starch mangle, using a 20-pound weight. Sometimes these goods are called "elastic ducks" and are finished plain, i.e., they do not go near a tentering machine. For this work a size made from corn starch or starch and sago is made and boiled with caustic soda. It makes up a kind of soluble starch and white dextrin of the mass which are most valuable agents in the hands of a good finisher. Being soluble they form a thin liquid, when boiled with water, which penetrates the fibers of the cloth instead of remaining on the surface only, as is the case with starch. They also have the property of causing the starch to boil thinner than when this substance is boiled with water alone. This is an advantage where it is required to give a thick leathery "feel" to low class cloth like elastic finish goods. Caustic soda and caustic potash dissolve starch. If starch be boiled with water containing only ½ per cent of caustic soda, a paste is formed, which is much thicker and very much more adhesive that if boiled with water alone. A higher percentage of the caustic alkali produces a still higher adhesiveness. This also neutralizes all acids that may be in the starch. If the alkali gets too strong for the color in the goods, which is unlikely, it may be neutralized, or nearly so, by sulphuric and then acetic acid.

The following is a good mixture for stiffening goods like the enclosed sample (which has been tentered):

100 pounds of corn starch; 50 gallons of cold water. Sieve through a fine sieve and add gradually with constant stirring, 20 pounds of caustic soda at 36 degrees Be. mixed in 25 gallons of cold water. Let the mixture stand with occasional stirring for two hours—then neutralize if neces-

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sary. Then thin down to the required consistency and add the comminuated glue, dextrin, etc., whatever is necessary to add to get the finish. Starch on two-bowled machines as usual (once or twice) and tenter.

Another good way is:—100 pounds of corn starch; 10 pounds of glue, as before, and 5 pounds of caustic soda. 100 gallons of water when finished.

Dissolve the starch in cold water first, gradually boil and add the caustic soda (previously dissolved). After all is dissolved add the glue and dissolve well.

W. B. (Me.)

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"The Care of Cotton Twine Loom Harnesses" is the title of a useful booklet just issued by the Garland Manufacturing Company, Saco, Maine. In the book it is pointed out that harnesses sometimes fail to produce satisfactory results because they do not receive proper care at the mill. This booklet is issued for the purpose of suggesting how properly to care for harnesses when out of the loom and how to secure the best results when in operation. The suggestions given are the result of practical experience, and should prove of value to the practical man at the weaving mill. Among the subjects covered are the storing, inspection, cleaning, mending and other common problems of the overseer.

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Information concerning the design, materials, workmanship, load-carrying capacities, and dimensions of the Super-Strom ball bearing is given in a useful booklet just issued by the Strom Ball Bearing Mfg. Co., 4527-67 Palmer Street, Chicago, Illinois.

## Chattering Rolls and Uneven Yarn.

EDITOR COTTON:

In reference to uneven yarn and the causes thereof, kindly allow me to make a suggestion in regard to a very common source of damage which I do not think has ever been as seriously considered by overseers and superintendents as it should be.

This is what I have always called chattering of the rolls.

It is very evident that to have a smooth and even drawing action in the cotton, that is, in order for the sliver or roving to be drafted as uniformly as possible, it is vitally necessary for the drawing rolls to turn steadily and without jerking. From long experience in the mill, I feel confident that the majority of mill men would be surprised if they would take the trouble to examine their rolls on the fly frames and spinning frames, and see whether they are turning steadily, or whether they are turning with a series of small jerks.

This can be tried very easily by laying the hand over the leather rolls, as the frame is running, on the end of the frame farthest from the gearing. Loose roll necks, dry bearings, frames not properly lined up, gears set too deep, and a variety of other things will make the steel rolls chatter, and this can be detected by the action of the leather rolls the minute the hand is laid over them. It is hardly necessary to say that this uneven action makes uneven yarn.

One superintendent who had this trouble due to the use of unsuitable oil, cured it by changing to sperm oil and has never used anything for the purpose since.

T. W. (GA.)

## Two Sets of Lease Rods at the Slasher.

Editor Cotton:

In vsiting a mill recently I saw a practice which was entirely new to me, and which might interest your readers. Lease strings were run in the warps at each warper before the beam was taken off. These strings ran over and under alternate ends just as would filling in a plain weave. The idea of this was to enable them to put a second set of lease rods on the slasher to split out the yarn where ends from the same section beam are taped together.

The regular lease rods on the slasher will only separate the yarn by section-beam-sheets, leaving any ends that come from the same beam unseparated. The superintendent of this mill says that tests showed a large amount of loom stoppage due to these taped ends, as they are running heavy warps where as many as ten ends will be in one dent of the comb, and there is almost no separation from the yarn passing through the comb. This plan of operating a double lease has greatly reduced the warp breakage, as every end in the set is entirely separated from every other end.

It is possible that others have tried this scheme, and if so, it would be interesting to hear from them.

T. S. (Mass.)

## An Automatic Cotton Control.

The Saco-Lowell Shops have developed and applied to the Morton distributor, the Thomas automatic regulator, which is designed to insure that all the hoppers are adequately filled at all times, and by preventing uneven loading of the hopper, to help to produce a more even lap, as well as doing away with the overflow of any surplus from the apron.

This is accomplished by an electric master switch attached to the hopper of the last feeder in line in the picker room, which is operated by a rake in the hopper. The master switch is wired in connection with the control box, and controls a variable speed motor which is attached to the bale breaker; or, if two or more bale breakers are used, the variable speed motor is mounted on the ceiling to drive an overhead countershaft, which in turn drives any number of bale breakers.

When the amount of stock in the last hopper gets down to a level where it is desired to replenish it, the master switch is operated by the rake, causing the motor running the bale breaker lifting apron to operate at the higher speed, thus increasing the flow of cotton to the distributor. This high speed continues until all the hoppers are fully equipped. When the last hopper in the line is full, which cannot occur until all the others have been filled, the action of the rake causes the master switch to reduce the speed of the motor, diminishing the supply until the level again reaches the low point, when the operation is repeated. By slowing down the supply when the hoppers are full, the overflow at the end of the line is done away with.

The control box in the opening room contains a rheostat where the low speed can be increased or decreased, as required. Push button switches are attached to each side of the bale breakers, to start and stop the machine. An extra push button is attached to the last hopper of the feeders in the picker room, to stop the bale breakers immediately in case of an emergency.

A change in the method of operation on their double-shift pick counters recently was effected by The Root Company, Bristol, Conn., with a view to making the drive and registration more positive. These counters have two sets of dials, one for recording the day shift production of the loom and the other for the night shift. As originally designed, it is stated, these counters were operated by means of two worms, driving worm gears on the two dial shafts of the counter. These worms were always in mesh and recording was done on either the day or the night set of dials, depending upon which clutch was engaged. A little lever on the outside of the counter put one clutch into mesh at the same time taking the other out of mesh. While it was impossible for both clutches to be in mesh at the same time, causing duplicate recording, it was found there was no means for locking the clutch which was out of mesh, thus allowing a tendency for the set of dials not in use to creep forward or advance slightly.

To overcome this in the new style of shifting mechanism, a continuous worm which is always in operation is used. The worm gear itself is thrown in and out of mesh at will, depending upon which set of dials the registration is desired. A lever similar to the old style, except more positive and easier of operation, controls the shifting from day to night position. One gear is thrown out of mesh and the other thrown in, and as soon as the gear is thrown out it is immediately locked so that it is impossible for the set of dials covered by that gear to register.

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Fales & Jenks Machine Co., Pawtucket, R. I., have issued a new booklet entitled "Comparative Yarn Tables," as an aid in connection with the growing tendency to use different kinds of yarn in the manufacture of many kinds of fabrics. The various sizes of yarn in cotton, wool, worsted, silk, linen, hemp and jute are set forth and their various equivalents are tabulated. The tables show the weights for numbering yarns based on several different yardages being selected in order to cover, as far as possible, the various practices common in the different textile industries; and also that the customary practice of reeling and sizing of yarns might be made convenient for those familiar with only one branch of the industry.

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Bulletin 37, illustrating and describing the Century alternating and direct current fans, has been issued by Century Electric Company, St. Louis, Mo. The types featured include the portable oscillating and stationary, the ceiling fan, and ventilating fans.

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A special issue of "The Albatross," the company's house organ, celebrates the twenty-fifth anniversary of The White Company, manufacturers of White motor trucks. The development of motor transportation during the past quarter-century is interestingly depicted in story and illustration; the progress and growth of the White organization, paralleling this development and playing a distinct role in it, being charted.

---

Guy L. Melchor, Sr., of Atlanta, popular sales representative of Howard Bros. Mfg. Company, now proudly boasts the title of Grandfather. On Friday, March 13th, a bouncing baby girl arrived at the home of Mr. and Mrs. Guy L. Melcher, Jr.

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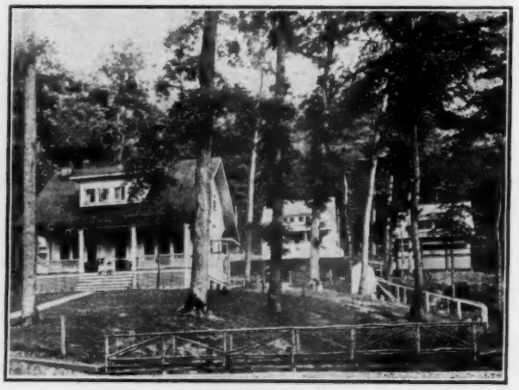

Beautiful Homes for Plant Officials

## Spinning Discussion Held at Charlotte.

(*Continued from page* 561.)

one has anything on that I would be glad to hear from them."

"We use water from deep wells," said Mr. Edwards, "and it would cause trouble collecting and choking up the pipes.

"Speaking of letting in fresh air," he continued, "I let in all I can, because I feel like it is good for the help as well as for the machinery."

"Mr. Williams, do you know anything about different waters giving trouble?" asked the chairman.

"As this gentleman has said," replied Mr. Williams, "various chemicals have their effect; more largely, however, on the pipes than they do, so far as I know, on the relative humidity." Mr. Williams said that while he knew of no laboratory test in this connection, one might be carried out, and this probably will be done before the next spinning discussion.

"Just this in that connection," said Mr. Winget. "We started up the Victory mill on city water, and the thing we noticed was a collection of slimy substance that would get on the wet twister rolls. We put in a deep well and we do not notice so much of that now."

W. F. Strowd, superintendent, Erwin Cotton Mills, Cooleemee, N. C., came into the hall and was asked for his experience with humidity. He stated that he "runs around 60 on all numbers, but usually carries a little bit less on filling than on warp."

Mr. Harris asked Mr. Culpepper if his company had made any tests relative to the different water and their effect upon the work. "I cannot say that we have," responded Mr. Culpepper. "We have made quite a number of tests with water, but we have never found rusting of rings to be attributable to any foreign matters in the water. Usually we find that where rust occurs it is caused by excessive humidity."

The chairman next asked William P. DuTemple, southern representative of the Whitinsville Spinning Ring Company, whether it had been found possible to make a ring impervious to rust.

"There is a rustless, stainless steel," answered Mr. DuTemple, "but it cannot be turned into a ring." Mr. Harris intimated that possibly it was the material in the English ring which allowed it to stand higher humidity without rusting. Mr. DuTemple stated that his company now has some English and some German rings with which they are experimenting.

"Some time ago," advised Mr. DuTemple, "there was a pressed steel ring made by the Torrington Manufacturing Company of Connecticut, which was made to stand up without rusting, but this ring is not made any more. It is a fact that a soft ring will rust more quickly than a harder ring. The kind of steel has an influence on it. There is a galvanic action set up between the hard and the soft spots; different hardnesses and qualities of steel will take different degrees of rust at different times. We have had several inquiries for rings for wet twisters made out of that stainless steel out of which they make knives, but this cannot be turned in a lathe to get any kind of a smooth and satisfactory job."

"But if it is a fact that yarn increases in strength up to 9 per cent," insisted Mr. Harris, "what conditions can we change to allow us to get the full benefit of this?"

"Speaking of getting as high as 9 per cent," pointed out Mr. Williams, "according to the Bureau of Standards, cotton has, naturally, 8½ per cent moisture content. When you get beyond that nature it will not hold it; consequently it appears to me that when you do that you are running into trouble."

"Well," replied Mr. Harris, "I know when you get beyond 60 to 65 per cent relative humidity you strike trouble.

"And if you fall short of your breaking strength and regain then you must put it in some other place in the finishing process."

"But take a weaving mill, for an instance," said Mr. Harris. "If you are putting 7½ per cent regain in the yarn in the spinning room, you of course take out part of that regain in slashing the warp, and you must put it back in weaving, and we do that. But the question is, would it be stronger, and the spinning run better, if we could get all that in the spinning?"

"You might get breaking strength, but you would have lapping on the rolls, and rusting."

"With six degrees difference in the dry and wet bulb temperatures, say 80 and 74, what relative humidity would that be?" asked John S. Lockman, overseer spinning, Lockhart (S. C.) Mills, at this point.

"That would be 75 per cent relative humidity," answered Mr. Culpepper.

"I take a record of my hygrometers each morning," continued Mr. Lockman, "and I get, generally, from 6 to 7 degrees apart in the morning, and in the middle of the day they will run between 10 and 12 degrees apart. I have no trouble with rusting, whatever. I take all the fresh air I can get. I keep the top windows open all the time and generally raise the windows on the east side of the mill, so that I get humidity from the humidifiers and from the river to boot. In one mill I run 30s and 40s, and in the other 14½s and 23s, and I run practically the same humidity.

"If difference in humidity will do it, taking a sample of roving from the card room supposed to spin into 30s yarn, when you bring it from the card room, how much humidity will you have to have to make it spin 30s all the way down?"

"In that connection," responded Mr. Harris, "I can give you here the results of some tests made by a man I know. He took a whole side on 29½s warp, and reeled it off and put it in a paper sack, and punched the sack full of holes and set it in the weave room. At the end of five hours he took it out and sized it, and his high was 33.33s, and his low was 26.81s. That gave him a variation of 12.98 per cent over standard and 9.11 under standard, a total variation, high and low, of 25.49 per cent.

"At the same time he took yarn off of another side in the same room, did it the same way and let it stay in the weave room for ten hours, and his sizing showed a variation from 30.86s to 26.32s, which gave 4.61 per cent variation over standard, and 7.38 per cent under standard, or a total of 15.38 per cent from high to low. But of course we cannot say that was all humidity, as there might have been other things entering into it."

"Did he weigh it before he took it into the weave room?" asked Mr. Lockman. "No," replied Mr. Harris. "Then you don't know what his variation was," commented Mr. Lockman.

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**Shape of Bobbins for Filling Wind Warp.**

Here the discussion was changed from humidity onto the subject of filling wind warp bobbins, begun by the question from Mr. Brown as to just which is the best shape of bobbin for this work. Giving his own experience, Mr. Brown stated that, "We built a bobbin with a slight taper, which was ¾ of an inch at the bottom and ⅝ at the top, giving a ⅛-inch taper. That bobbin runs on our warp, 29½s, with a front roll speed of 110, and runs six hours and seventeen minutes. It would run longer if we could fill it up a little further. We find it a distinct advantage, for on the same ring and speed, we got five hours and forty minutes on the warp build with a regular warp bobbin."

"Did you increase the front roll speed?" asked the chairman.

"No, sir, I left it the same thing."

"What stroke?"

"About 1½-inch."

"Length of traverse?"

"Eight inches; a very long bobbin. 1⅞-inch ring."

Another man at this point declared that he had gained something over an hour between doffs, on 30s warp, by the use of a cone-shaped bobbin on filling wind.

Mr. Jolly, of the Manville-Jenckes Company, stated they have 140,000 spindles on filling wind with bunch builder. He wanted to know if "we can get as many pounds on filling wind as we can on warp wind, per doff?"

"If you adopt the right kind of bobbin, you can," said the chairman.

"But on the same bobbin?"

"No, sir!"

The chairman here stated that he is running the warp bobbins that he has always run, and that there is not over five minutes loss in the doffing period with filling wind. Mr. Lanier added that, "I am running a test using the same bobbin on 12s, and they run two hours and ten minutes on warp, and two hours and twenty-three minutes on the filling wind; so I get a gain of 13 minutes. 2⅛-inch ring."

In connection with filling wind on narrow gauge frames, it was brought out here that the bottom of the separators were removed so as to allow the bobbins to run full before doffing.

Peter Quinn, spinning expert of the Draper Corporation, brougnt out at this time the importance of changing the type of bobbin in going onto filling wind in order to get the full advantage of the change-over. He further advocated the use of four or five "scratches" on the top of the bobbin to prevent the yarn from slipping over the top. He recommended this for any numbers, although the "scratches" must be big enough, he pointed out, so that the yarn will come out of it. On coarse yarn it doesn't matter so much as on fine work.

"My experience is that since I have eliminated the scratches I get better results," commented Mr. Dilling.

"Oh, well," said Mr. Quinn, "You are on fine yarns, very fine yarns, and don't need it."

"My bobbin is straight, and the same size at the bottom as at the top, with no taper, with a 1⅛-inch base," added Mr. Dilling.

The chairman requested Mr. Quinn to give his recommendations for a filling-wind bobbin for a 1¾-inch ring and a 7-inch traverse. The reply was: 1¼-inch cone, 1¼-inch long, with a taper ¾ inch at the bottom and ⅝ inch at the top, with the "scratches" as recommended.

Mr. Lockman asked Mr. Brown if in changing to filling wind he changed the number of traveler, and the reply was in the negative.

"I do not run filling wind," continued Mr. Lockman, "but I know you can take a filling bobbin and caliper it, and you will find that it gets a little bit smaller all the way up. I think that is because the traveler gets heavier as the rail gets nearer the top, than the bottom. That is why I think that you could run a heavier traveler with filling wind."

"I would like to know if anyone running 22s on a 3-inch gauge frame, filling wind, is getting good results using a 2-inch ring?" requested Mr. Strowd.

"We are running 20s on filling wind; changed about two years ago, and we would not go back," responded Mr. Moore, of Gaffney. "Our biggest trouble was in the cone on the bobbin. We bought a bobbin that tapered from the cone to the top, and at first we had trouble with the doffers pulling the yarn off. But we got an increase of 7½ per cent in production, and more yarn on the bobbin, increased the front roll about six turns, and after training the help we get along all right. We have 3-inch gauge frame with 2-inch ring. We make 134 front roll speed on 20s, 7-inch traverse, 8-inch bobbin. We are putting in a little bit more twist than we are supposed to. We run single drawing, and fly frames."

"I am not running filling wind," observed Mr. Anderson, "but I believe the gentlemen will find it best not to have any cone at all on the bobbin. I think a straight bobbin is best. You take a cone on the bottom and you have to weight up on the traveler to hold it down from ballooning, and when that runs to the top of the traverse the traveler is too heavy. By taking the cone off you can get an equal pull all the way up and you can run a lighter traveler. We find this condition to be true on filling yarn, and it runs better in the weaving and makes less waste."

"Well, do you have more ends down on starting off after doffing?" the chairman asked.

"I don't believe we will have ten ends down on a side," answered Mr. Anderson, "and the traveler is sufficiently heavy to take care of the excessively heavy pull and then it is light enough when it goes on up, not being too heavy at the top."

"That is true with filling," agreed Mr. Quinn. "But on warp you have to have a whole lot larger ring than that, and you can start with a lighter traveler but you will have more ends break down on the spoolers."

"I don't believe spooling would be more severe than weaving," objected Mr. Anderson.

C. C. Briggman, overseer spinning at the Lancaster (S. C.) Cotton Mills, stated here that they liked filling wind as far as they had gone with it; had been able to increase the front roll from 114 to 121 on 30s. He favors the cone-shaped bobbin because it permits of a better regulation of travelers, he said.

Mr. Chandler, of Chester, stated that they use the bobbin recommended by Mr. Quinn.

J. B. Meacham, manager, Atherton Mills, Charlotte, differed from usual practice in that he reported the use of a bobbin with a cone, but with a taper larger at the top

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than at the bottom. This, he said, has given him satisfactory results for three years.

In concluding the morning session, and the discussion on filling wind, Chairman Harris asked if anyone had tried filling wind and returned to warp, but no one indicated he had done this, so the chairman expressed it as the apparent consensus of opinion that filling wind was satisfactory if it could be made to run right.

**The "Dutch" Luncheon.**

At 12:30 o'clock the men assembled around the festal board for the usual mid-day luncheon. Two vocal solos constituted the entertainment furnished by Charlotte concerns, and after the music short talks were made by L. L. Brown, Robert W. Philip, W. F. Strowd, Marshall Dilling, H. G. Winget, and David Clark, who acted as toastmaster.

It was announced at the luncheon that a discussion meeting on weaving will be held in Anderson, S. C., on Wednesday, April 15th, under the direction of L. L. Brown, chairman of the weaving division.

Also that the annual meeting of the Southern Textile Association will be held on Friday and Saturday, June 19th and 20th, at the Kenilworth Inn, Asheville, N. C.

**Causes for Variation in Yarn.**

The afternoon session was begun at 2 o'clock, and Chairman Harris announced that yarn variation would be taken up. "The causes of uneven yarn range from the picker room to the spinning room," he said, "but our particular side of it is to deal with the spinning room, and find out, if possible, some of the causes and remedies in this department.

"For instance, we have been discussing humidity, which, I have concluded, is a mighty big factor in the variation of yarn. However, that is not on the mechanical side of it in the true sense of the word, and there are so many things about the machine settings, and repairing, etc., that cause variation that it would take us quite a bit of time to go into them." He called upon Mr. Dilling for a statement.

"Most of the things I have tried to do to eliminate uneven yarn have been in the card room," responded President Dilling. "One of the most important things in the spinning room is to have the humidity properly regulated so that the yarn will be spun under the same conditions at all times. If you do not have your humidity regulated properly there is such a variation in the amount of moisture that you will have more or less unevenness in your yarns.

"Of course, we have done such other things as keeping the rolls properly set, machines in good condition and properly leveled and lined, and working especially on the leather rolls, trying to keep rolls that will not lick any more than possible, and keeping them in condition and properly set. Some men have told me that they accomplish good results by the use of the light middle roll."

"Do you mean the metallic roll or the wooden roll covered with leather?" asked Mr. Winget.

"Both," replied Mr. Dilling. "I cannot see much difference in them, and I can't get much results from either of them."

With reference to the light middle roll, at the request of H. H. Boyd, general superintendent, a gentleman from the Chadwick-Hoskins Company reported that "I have made a test on two frames with the wooden middle roll covered with leather and weighing two ounces. I find that I can close up the rolls completely, both the top rolls and steel rolls. And I get a more even yarn and a little better breaking strength on 56s. 2¾-inch frame, 6-inch traverse. I find the yarn seems to be more even by closing up the rolls, although we are running 1¼-inch cotton and are supposed to have the rolls spread 1/16 inch more than the staple. This middle roll has no weight on it, the weight is on the back and front rolls."

"Has anyone tried the light middle roll on inch cotton on 30s and 40s yarn?" asked the chairman.

Mr. Ray, of Brookford, said he had run it on 22 frames on 20s and 30s but had failed to note any especial advantage or improvement.

"Are you talking about variation in yarn or the thick and thin places?" queried Mr. Strowd.

"Thick and thin places are caused by local conditions too deep for us to consider," explained Mr. Harris. "We are talking about the variation in the numbers."

"Then, you are talking about the rolls on spinning frames and speeders, and I don't believe that has anything to do with the variation in the yarn," declared Mr. Strowd. "I think it goes back from the card not delivering a regular sliver, and from the picker. I believe if you get these things right we would not have over five per cent variation. If you will make a picker deliver cotton to the cards evenly, and if the cards deliver the same, we ought to get an even yarn without variation. Of course, however, local conditions can come in and give you variation."

"You know how to set the picker evener for three or four laps?" suggested Mr. Harris.

"Oh, yes," said Mr. Strowd, "but that will not do it."

"And never will," agreed the chairman. "But there is a limit to which you can go, but beyond that point you will have unevenness."

"But if a perfect lap is delivered there is nothing to make it uneven," insisted Mr. Strowd.

"Well," you could have laps and piecings to cause thick and thin places," said the chairman, who next called upon Mr. Wikle for his experience.

Mr. Wikle said that "if you weigh a lap from the picker yard for yard you will find a variation from lightest to heaviest as much as 25 per cent. I have found, in tests made in ten mills, that there is an average variation on drawing, on the first process of drawing I mean, of about 12 to 15 per cent. This goes down to six or nine per cent on the second process of drawing, according to my tests, and then it begins to climb up on the slubber. Taking every slubber in the mill, or enough to give me a fair average, I found it went up on the slubber to 11 per cent, to about 14 per cent on the intermediate, and 16 per cent on the fine frames, and about 25 per cent in some mills when it hit the spinning, taking every frame in the mill.

"So, I reason, if our process is most even at the second drawing, as these tests show, that is the place we want to try to keep it even. And our system of doing this is to size both morning and evening, and twice at night. We have a standard of 48 grains for the finisher drawing, and when the average of our sizings varies as much as one-half a grain we make the necessary change to try to bring it back. If we keep it more even at that point we will have less variation.

"Thta is the system a great many of the New England

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mills use. If you have a lot of card sliver coming through light, we will say, you don't usually know it until it hits the speeeders, and you try to change it there, but if you changed it at the second drawing, before it gets a start, you would get it at the place where there is less changing to do. My total variation is not over 4½ numbers on two sides from the highest to the lowest number."

The next question brought up by the chairman was, "Would you have less 'high bobbins' (that is, bobbins that jump up) if the bobbin was constructed to go further down on the shoulder of the spindle than is customary?" He said he has considerable trouble with this.

"Take the waste out from under it and it will go down," facetiously suggested Mr. Boyd. "How about a high spindle speed and a real light bobbin?" asked Mr. Winget, who agreed that he sometimes had to chase them down the alley.

"Some years ago I had a whole lot of trouble with that," recalled Mr. Boyd. "Most of the spindles made at that time had a brass cap just above the whirl, and everybody was making a bobbin to fit the bottom part of the spindle. I had my bobbins changed to fit the top part of the spindle, and didn't have so much of that difficulty."

"Sometimes I have this trouble, when they let yarn get under there," said L. B. Gibson, superintendent of the Fairmont (S. C.) Manufacturing Company, "and I have to go around and jack 'em up about it."

"I think the proper system of cleaning would help this," said F. C. Todd, superintendent, Ruby Cotton Mills, Gastonia, N. C. "I think if you would clean your spindles once a week you would not have so much of these high bobbins. If you have the proper bobbin for the spindle, and keep them cleaned and keep the waste off of them, I should not think it would be much of a problem. That has been my experience."

"That has probably been your experience, but it hasn't been mine," said the chairman.

"Sometimes bobbins don't fit," suggested Mr. Winget, "and if you get in a new supply of bobbins you may find bobbins all through there that don't fit well."

"I don't believe anybody inspects bobbins closer than we do," declared Mr. Harris, "and still we have 'high bobbins.' The result is we can't put our spindle speed up like we would want to. Ordinarily on this spindle you will find bobbins that go down ½ inch. What I want to know is, if you put that bobbin down to where it goes down on the spindle say an inch, and fits to the shoulder, will you have less 'high bobbins'?"

Mr. Quinn said he believed the trouble was in the fact that the bobbins were wood, because this did not permit a 100 per cent contact. He recommended metal bushings as a remedy for this, because, he said, this would give more contact, and the brass would hug to the spindle. When a wooden bobbin is reamed out, he explained, you get a piece of "raw wood," so to speak, that will not perfectly fit the spindle.

Mr. Gibson said he had found relief from this by painting with chrome green and shellac.

At this point Mr. Meacham, of the Atherton Mills, exhibited a sample of the bobbin referred to in the morning discussion, which was larger at the top than at the bottom. Mr. Dilling measured this, and gave out the following specifications: 1⅛ inch at the bottom of the cone; 11/16 inch at top of cone; ¾ inch at top of bobbin, giving a 1/16-inch taper; bobbin 7½ inches long; no scratches at top of bobbin. Mr. Meacham added that he uses 1 3/16-inch cotton, making 30s, uses a 9/0 traveler, and gets 130 r.p.m. front roll speed on his 30s.

A Chadwick-Hoskins bobbin, with the other kind of taper, that is smaller at the top than bottom, was measured, and the following specifications given: 1⅛ inch at base; 13/16 inch at top of cone; ¾ inch at top of bobbin; 8 inches long. The gentleman said he gets 112 r.p.m. on 30s.

Six indicated they had used the No. 1 flange ring on 30s, in response to the next question. Mr. Lockman said, "We changed back to the No. 2 because we became disgusted with the No. 1 for 30s warp. I may have some bad ones, and I don't know what a good No. 1 would do, but I do know I'd rather have a No. 2 that had been run 15 years than the No. 1s we have got."

"We find we get better results from the No. 1," said Mr. White, of Shelby. "We have been running them about two years and have not had a bit of trouble. We have tried both."

Mr. Todd said here that he didn't believe many present knew the difference between a No. 1 and a No. 2 and A. B. Carter explained that the No. 2 is 1/32 larger than the No. 1.

Mr. Brown next asked if anyone had tried more than one kind of bobbin. "I haven't tried but one, which is seeming to give satisfaction," he said. "Has anyone experimented with any other kind than what they are using?"

None said he had.

Mr. Richards here expressed the opinion that the yarn would not slip off of a bobbin the same size all the way up on filling wind if the right lay gear is used. This, he said, largely determines the yarn slipping off. Adding, of course, that the proper traveler must be used.

The chairman here brought up the question of a member who has a 1⅞-inch ring in a 2¾-gauge frame on 13½s, and is having trouble with it. He wanted to know if anyone would recommend a 2-inch ring. No one did, but Mr. Dilling explained that it would not work with that small a gauge. However, he pointed out, "the 2-inch ring would not be too large for this work; the gauge would be too small. I would recommend a 3½-inch gauge."

The next question was from a man who said he is making 42s filling out of 1-inch cotton, and he wanted to know if it would improve the running more to change the 7-inch traverse to a 6-inch traverse, and raise the spindle rail an inch, or to increase the diameter of the present bobbin by ⅛ inch. He said he is having trouble with ends coming down when he starts up.

Mr. Lockman recommended pulling the traverse down and stopping it off one inch at the top.

"Would you get as much benefit as by raising the rail?" asked Mr. Harris. "You would not be shortening the distance between the rail and the roll."

"You could drop the thread board down," answered Mr. Lockman. "I believe you would get the same advantage."

"I think he ought to put in a 7⅜ bobbin and put his rail up," said Mr. Quinn.

The chairman next asked whether the bolsters wear more on tape-drive than on band-drive, but no one could give any comparative information. Mr. Quinn said his company had prepared no data on this, but "the way it looks to

me there is less tension on the tape- than on the band-drive. He was requested to secure some information on this for the next meeting.

L. R. Gilbert, superintendent of the Caraleigh Mills Co., Raleigh, N. C., a colored goods mill, brought up the next problem. "The question I want to ask probably is not exactly a question on spinning, but the spinner catches all the thunder about it," he said.

"I am on colored work. Ginghams have been selling mighty well for the last few years, which has required a considerable change in style and this has necessitated running heavy cords through fine reeds. It is the spinner's job to put the cords up in such good shape that they will go through the reeds. Now I want to know if anyone has had any experience on this."

Mr. Covington said he took a reed and found out exactly the space required, and took out one section of the reed.

"That would get by if you did not have to change patterns," said Mr. Gilbert. "Every time one of these knots comes up it makes a pick out. I have a crude method of doing it, which isn't entirely satisfactory, but here is my plan. I have made a creel and instead of spooling the twisted yarn I put it in a creel from the twister and run it, say, if I have 150 ends on the loom beam I will put 150 bobbins on the creel, long chain beaming, and when that begins to run out the man who is supposed to run the frame stops it and creels in new bobbins which makes all of the knots come up at the same time."

The next question asked by Mr. Gilbert was, "How many ends do you have to come down on a side on 32s yarn, 1⅜-inch ring, 7-inch traverse? I am using the ordinary filling quill, a straight bobbin."

Mr. Lockman said that it depends altogether on the care and skill of the doffer. Mr. Gilbert explained, however, that due to the location of his plant he could not get exactly the "cream of the help" and had to sort of take what came to him. Further questioning brought out the fact that he uses the round-point traveler, which several said was responsible for some of his trouble. Mr. Harris asked if he had tried increasing the diameter of the bobbin, and the reply was in the negative. "You can increase the diameter of the bobbin ⅛ inch, and it will not shorten the length of the doff," explained Mr. Harris. "Thanks," said Mr. Gilbert, "I think I will take a shot at that." He added that he was going to try the square point traveler, although he had experimented with it before without much beneficial result. W. P. Lee recommended that he "stop the frame about two inches above the bottom of the bobbin. Have one man to start up the frame, and let it go down slowly, working the traverse with his foot. The idea is to work the traverse so as to get the right tension on the ends."

"But if you have feelers you'd better watch for the weavers to come back to you," was the comment of one man.

Mr. Crowley stated his experience with doffing had been that the starting up of the frame has as much to do with the ends coming down as anything else.

The next question was from Mr. White, of Shelby, N. C., who wanted to know if anyone was using a 4x6 fiber head spool on 30s warp yarn. "It seems when we first creel the warpers on a full creel we get good results, but as the spools get lighter we cannot control the slack weight on the warpers," he said. "We run the warpers 56 yards per minute." Mr. Boyd suggested that he take off some of the oval in the formation of the spool, which would eliminate kinks to a certain extent.

This practically concluded the discussion, and the meeting was adjourned, following a rising vote of thinks to Chairman Harris for his efforts in the Spinning Division, and a resolution of appreciation to the local entertainment committee.

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The new cast iron shuttle eye has been placed on the market by the Draper Corporation, Hopedale, Mass. This eye is made of cast iron with an inserted steel scroll. The old flannel friction at the throat of the eye has been eliminated, the new friction being entirely metallic, obtained by drawing the thread around corners. A steel bushing in the thread-hole in the side of the shuttle replaces the use of steel pins set in the wood. A wide opening above the scroll and the shape of the scroll facilitate threading, and the scroll affords a large throat for the filling, and the distance of this throat from the end of the bobbin has been nearly doubled. In addition to the facility in threading, the manufacturers state, it is most difficult to unthread the shuttle in the operation of the loom, and that in case of this unlikely unthreading, it will automatically thread up again without leaving a defect in the cloth. The metallic friction, it is pointed out, eliminates the common cause of weaving-in trailing ends from an ejected bobbin. Depending for its frictional force upon drawing the thread around corners, it is explained, it has its maximum effect while the filling is being woven off. When the filling breaks or is cut on the transfer of the bobbin by the feeler, this friction ceases to act on the loose trailing end, which is drawn out by the ejected bobbin.

The larger filling throat in the scroll, its greater distance from the tip of the bobbin and the absence of the flannel friction at this point, it is stated, insure more even tension on the filling, reduce the number of filling breaks, eliminate "nicks," improve the selvage, and make it easy to thread up and weave off partly filled bobbins.

One eye accommodates all sizes of cotton filling from coarse to fine, the manufacturers point out.

With less wood cut away for fitting the eye to the shuttle, the shuttle is stronger, and being of cast iron, the eye will not bend and cannot be changed in shape.

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The results of an investigation to determine the adaptability of centrifugal pumps for handling oil appear in a booklet recently issued by The Goulds Manufacturing Company, Seneca Falls, N. Y. The test was made for this company in collaboration with the Union Oil Company of California. In the tests petroleum products ranging from gasoline to oil of 7,000 Saybolt viscosity were pumped. Sixteen full-page charts show the performance of centrifugal pumps when handling these commodities as compared with the performance when handling water. Since the performance has a direct relation to absolute viscosity and specific gravity, it is pointed out, the charts can be of assistance in determining the performance of centrifugal pumps when handling viscous liquids of any kind. Copies of the booklet doubtless can be secured upon application to the company.

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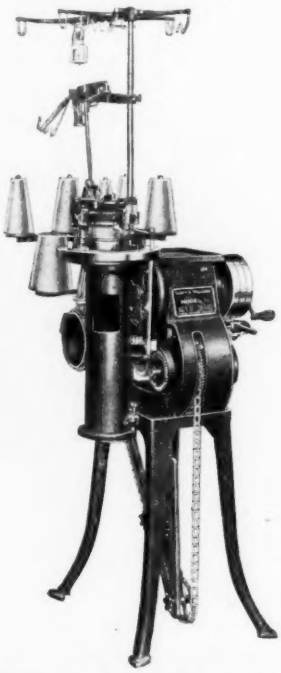
*with fashion seam and fashion marks*



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QUISSETT MEANS QUALITY

# Fancy Hosiery on the Straight Bar Frame

BY WILLIAM DAVIS, M.A.

The straight bar hosiery frame has been largely adopted for making the fancy fabrics which are in increasing demand in the market for knit goods. One of the best known types of this machine is the Cotton's patent frame which is familiar equipment in every country where the knitting industry is carried on.

The simplest form of fancy effect is, of course, the horizontal stripe, which is introduced in the machine by the use of several thread carriers or guides which can be controlled by a chain in front of the machine. The guides are so arranged that they can be brought into action at will according to the links on the chain; nothing on the chain keeps carrier one in action; a small stud of height 1 brings the second carrier into the picture where it occurs; for the third color, a stud is introduced where the stud is a stage higher than the stud for 2, and so on. These can be kept in work as long as desired, but not usually for a single or odd courses owing to the alternate side-to-side movement of the thread carriers which have to be brought back to the start when they cross the frame. The stripes must also be

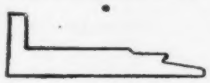

Fig. 1.

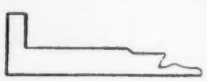

Fig. 2.

introduced in even numbers, 2, 4, 6, etc., so that when any color is carried across the frame it is taken back to the start again.

There has been for some considerable time a kind of reaction in the mind of the public against cross-stripes in knitted fabrics, except for such special purposes of wear as football jerseys, where the stripes serve to attract the attention of the onlookers to the players, and also to make the players' movements more easily followed on the playing field. For normal wear, such cross-stripes do not harmonize with the nature of things, because the human figure is elongated and to make it bear cross-bars is out of keeping with the general scheme of physique.

By far the most popular form of stripe is the vertical line, but owing to the weft-like nature of the knitted stitch, this type of effect is not easy to produce in a vertical direction. In the Cotton's patent frame plain stitch is formed by the aid of sinkers which work horizontally with a vertical set of needles in the formation of the stitch. These sinkers operate on the yarn as soon as it is received from the thread guide and push the thread between the needles of the frame to measure out the length of yarn to be utilized for the formation of the loops.

Now if we employ two colors in the thread guide and feed these into the needles in the same relation to each other, that is, for example, *A* always in front of *B*, then in the discharge of the stitch it will be found that *A* occurs on the face while *B* is on the back and the color of *A* will predominate on the face, and that of *B* on the back of the fabric. This holds good generally, as long as the two threads are kept at the correct tension, but if slackness occurs in loop formation then one of the colors will not form the effect clearly or neatly. The back color will reverse itself on the face and vice versa at the slackened points, giving an effect of oatmeal or granite style. This is in general termed bad plaiting but in recent seasons this kind of plaiting has been purposely cultivated to give an all-over effect to the fabric. The marled styles have been immensely popular in all departments of the manufacture of knitted goods, and this "faulty plaiting," as it is termed, has been the means of creating some very interesting and attractive results in marled effects. This is obtained by the degree to which the tension of one or other of the constituent yarns is made to vary.

It will be clear that perfect control of this reversing of the two colors in such cases will lead to patterns in a

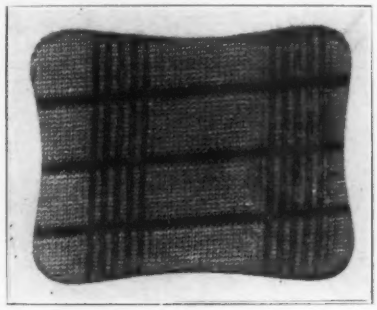

Fig. 3.

vertical direction, and this principle is responsible for a section of the plaited goods trade which has of late experienced marked improvement. The reversal of the plaiting colors occurs in the direction of the warp only, giving the much-desired vertical stripes. The agent employed for reversing the two colors out of their normal arrangement is

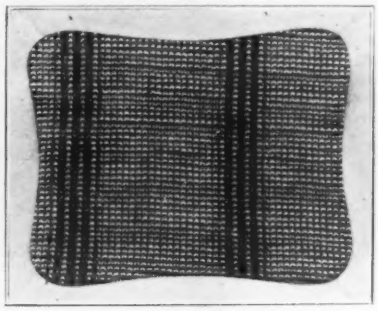

Fig. 4.

the sinker, and herewith are given two types of sinkers employed to attain this result in machines of the Cotton's patent class.

The first sinker, shown in Fig. 1, is the ordinary form of Cotton's sinker, with the short nib and the longer nose; for ordinary work all the sinkers in the machine are of this shape. In completing the loop, the thread has to be made to roll off the long nose of the sinker and when the sinker is of this shape and the tensions correctly controlled, the first color always moves to the back and the second color to the face. In Fig. 2 is shown a specially cut sinker where the general dimension is the same but the shape is altered as shown, to give a high part followed by a deeper

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groove on the left of it. By inserting such specially cut sinkers into the machine to replace the plain sinkers in a given order of pattern, the new shape causes the two colors to reverse their usual positions, thus giving a reversible effect on the surface and causing the two colors to produce a vertical stripe. When the two threads are being thrown off the specially cut sinkers, in moving up the hill or over the hump of the sinker, one color tumbles over its neighbor and the reversal is effected.

A view of a pattern worked on this principle where the two colors are a grey and a dark brown is shown in Fig. 3. The vertical stripe is obtained by this principle, where there can be noticed an array of five dark colored stripes on the ground of the pattern. These stripes are one and one, that is, 1 dark brown, 1 grey four times, followed by 1 of dark brown as a stripe to finish up with. Wherever those dark stripes appear in the cloth a sinker shaped like the one shown in Fig. 2 is inserted into the machine, and this is done right across the width at the correct intervals of stripe in each division of the machine. A close scrutiny of the striped portions shows that the vertical line is not absolutely perfect, there being numerous specks of grey intermingled with the dark brown. This, however, gives a very striking contrast, and in recent times it has become fashionable to have less strong contrasts in such goods. In this example the ground consists of grey on the face with dark brown on the back and variable tension is given to one of the colors, giving rise to a mottled effect in the cloth which finds a large demand, particularly the making of ladies' hose.

In Fig. 3 can be noted also how this special sinker effect can be combined with the ordinary horizontal form of stripe to give a check effect in the pattern. At the points where the cross stripes appear, two courses of solid brown are made and these can check with the vertical effect in quite a suitable manner. This principle of combining the hump sinker in a vertical direction with ordinary horizontal stripes in the cross direction has been employed largely in making checked hosiery of all kinds.

Another example of an effect produced on this system which gives a result comparable with the changing color schemes employed for a number of hosiery purposes, is given in Fig. 4. In this pattern the two plaiting yarns are a thread of silk running on the face of the fabric with a thread of brown on the back. The stripe is in the following order: 21-plain, 1-cut, 1-plain, 1-cut, 1-plain, 1-cut, giving a repeat of 26 needles in the width, in which plain sinkers would be replaced by specially cut sinkers like those in Fig. 2 and this right across the width of the frame in each division. But this pattern illustrates another principle of striping crosswise which gives very interesting and valuable effects in the fabric. The brown which normally passes on to the back of the ground is replaced by black crosswise, at the intervals shown in the pattern. Now the brown is fairly well obscured on the back of the pattern, although the effect is not so complete as in Fig. 3 because the silk thread is thinner than the brown. In the case of black on the back, the thread is coarser than the face silk, but in addition there is a maximum contrast between the two colors, so that what is merely a faint impression with the back brown becomes a pronounced effect with the black on the back of the fabric.

In addition, we have another special effect where the black crosses the points having the specially cut sinkers;

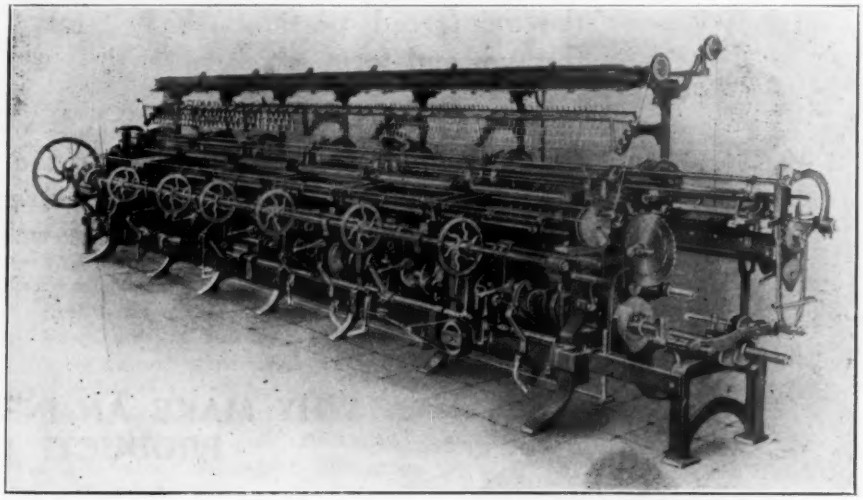


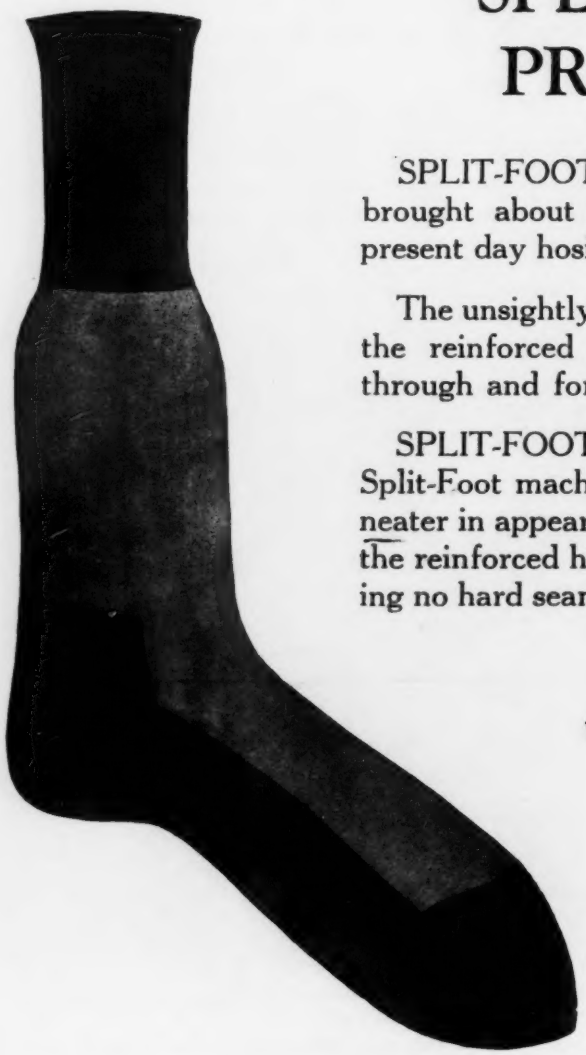
Fig. 5.

here the black is brought completely onto the face and breaks up the continuity of the dark stripe of brown and gives a shadow effect. This interesting style is very often used for spotting patterns in such goods, and as such the device has found a very wide range of usefulness for fancy hosiery of all kinds.

A view of a Cotton's machine in which all these effects are produced, is shown in Fig. 5, but it also gives an idea of another attachment which has been largely adopted for producing fancy hosiery patterns, and that is the vertical striping attachment for embroidery stripes. The plaited stripes have an advantage in being all in the same material and homogeneous in regard to texture, but it is clear that there is a certain rigidity in regard to their use, and the range of patterns is necessarily limited owing to the method in which they are produced. The embroidery attachment can be used to give a much wider scheme of figuring in such fabrics, and those figures produced on fancy hose have been much in demand and this demand remains largely unsatisfied.

# *The* "BANNER"

## SPLIT-FOOT PRODUCT



SPLIT-FOOT HOSIERY, the new creation, brought about by the main disadvantage in present day hosiery, namely:

The unsightly inside fringe of splicing ends in the reinforced portion which tends to slip through and form whiskers on the outside.

SPLIT-FOOT hosiery made on "BANNER" Split-Foot machines is smoother on the inside, neater in appearance and has added strength at the reinforced high splice and double sole, having no hard seams.

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Colonial Trust Bldg., 13th and Market Sts.

The frame is of the ordinary type of construction, but the arrangement for housing the embroidery bobbins is on platforms above the frame. These platforms are provided with spindles on which the fancy yarns are placed and from the bobbins they are drawn through the eyes of the guides in front of the needles. After the ordinary course of loops has been completed, these guide bars containing the fancy yarns arranged in the order of the pattern are brought forward and made to lap over their corresponding needles. The ordinary course of ground loops is then made in the fabric and the fancy yarns appear under the ordinary yarn of the fabric which means that they knit away from the worker. As the fabric on this machine is worked wrong side up, this means that the fancy embroidery effect is placed on the face.

A check pattern produced by means of the embroidery attachment on this frame is given in Fig. 6, where the

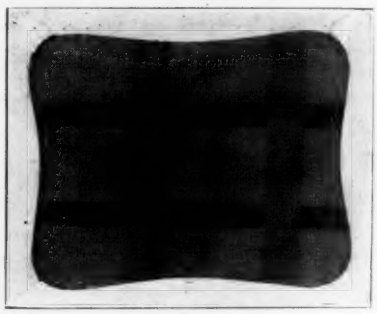

Fig. 6.

ground is a lavender with a vertical line in a much darker color. There are eighteen of ground and six of the dark color stripes, which means that at the latter points in the fabric six bobbins containing this color will be arranged on the platform above and drawn through six guides, which lap their threads always over the same needles. In some cases, the points in the embroidery bar are only arranged one for every two needles in the machine but an extra finger with an eye can be soldered onto the regular guide and a solid effect of this description produced. On handling this pattern it is evident these extra embroidery threads floating on the face make an appreciable difference in the thickness of the fabric, and on looking along the cloth, it gives the impression of being rather a lofty or embossed effect which imparts a heavy aspect to the hose, and increases the weight of the article. There are not, however, any residues of loose material or yarn floating on the back, which in footwear is a great bugbear, as it catches the toe nails of the wearer when he is drawing the hose on. This vertical effect is in this pattern again checked by the ordinary form of horizontal striping mechanism and the pattern occurs in cross stripes of six courses of reddish brown and twenty-two of ground. This gives a rather dumpy effect to the resultant check but this is not considered a disadvantage for footwear, as in this branch of the trade the checks do not require to be elongated, as in the patterns produced for outer garments.

It will be seen that this principle of making fancy patterns on hosiery frames is capable of wide application. Some of the elements which go to constitute such designing capacity may be indicated as follows: (1) The designer is free to arrange any order of color on the bobbin platform and each thread in the pattern can be of a different color if so desired. We can also have a certain color for the border and a different arrangement of color for the ground; (2) the colors can be worked in any material, but there are great advantages in using the most lustrous materials as these can be forced to the surface by the ground pattern to show in maximum effectiveness. In other forms of using such expensive materials, 50 per cent of the material is lost to the eye on the back, but in this style the bulk of the material is forced to the surface. (3) The threads can be drawn into the yarn guides in any order, and the guides can be arranged to give any width of stripe in the fabric. (4) The movement of the guides can be varied in a large number of ways so as to produce solid blocks of color, intermittent effects, zig-zag styles, straight lines or spots.

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C. J. Tagliabue Mfg. Co., 18 Thirty-third St., Brooklyn, N. Y., announce the establishment of an engineering research department, which will be devoted to engineering research work in studying the requirements for automatic controlling, indicating, and recording instruments and service. Victor Wichum, M.E., who continues as chief engineer, will be in charge of the new department. The development work on indicating, recording and controlling instruments will continue to be carried on by the experimental department, under Frank Bast. Development of oil-testing instruments continues with still closer cooperation with the A.S.T.M., A.P.I., N.P.A., and other bodies, with R. M. Wilhelm, formerly of the Bureau of Standards, in charge. Daniel C. Day will work on some of the more important problems of the users of "Tag" instruments, under Harvey D. Cooke, general sales manager, and William C. Begeebing now heads the division in charge of automatic controllers, dial indicating and recording thermometers.

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A textile handbook, strikingly different from the usual piece of literature of its kind, has been published by the E. F. Houghton Company, of Philadelphia, Pa. This new volume, compiled by the research staff of the Houghton organization, contains 165 pages and is prepared in a convenient, useful form. Part One discusses cotton production, ginning and classification and grading. Part Two takes up the manufacture of cotton, beginning with the opening process and describing in an elementary manner all of the machines involved in manufacturing yarn. Part Three discusses cloths and humidity and Part Four supplies useful calculations for mill work.

The most interesting feature of the book is the section devoted to the slashing of yarn, composition of size, analyses of sized and unsized yarns, starch, and preparation of size, where obviously useful and interesting data relating to these phases of warp preparation are given.

This volume, devoted to cotton, is the first of a series of similar handbooks planned by the company to cover other phases of textile products and processes.

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Among the cotton manufacturers who have recently added Sjostrom patent cooling and conditioning machines, built by the Manufacturers' Machine Co., of North Andover, Mass., to their equipment are: Aberfoyle Mfg. Co., Bates Mfg. Co., Riverside and Dan River Cotton Mills, and Western Shade Cloth Company.

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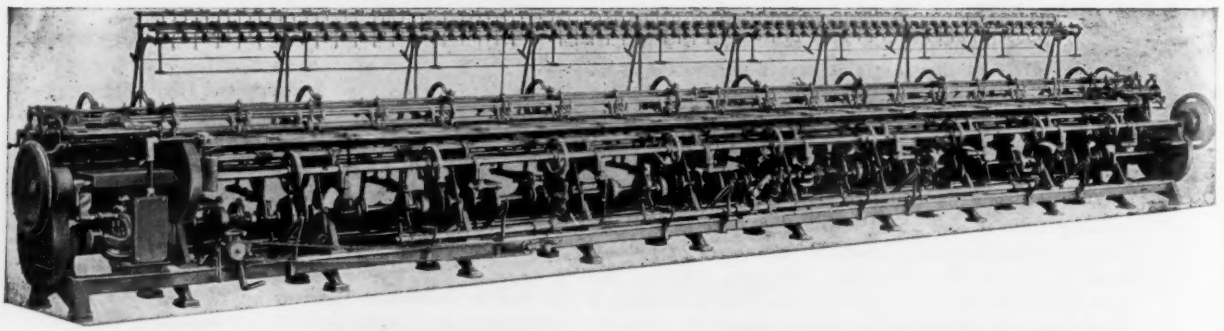

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## Asks Information on Seaming Underwear.

I would be glad to see in "Knitting Kinks" a discussion by underwear mill men on the merits of the various makes of machines doing the so-called flat lock type of seaming. I should especially like to have figures as to expense of upkeep, amount of thread used, tendencies for trouble, most satisfactory speeds, and any other items that other mill men have found of interest. Contributor No. 3901.

## Hole Cutting Below the Welt.

Editor Cotton:

I noted the question with reference to the H-H machine cutting holes in the top of the half-hose, below the welt, and will endeavor to answer it.

If the throat plate is set too far ahead the thread will be too close to the cylinder needles, as the latch closes, causing it to get pinched in the corner of the latch. The throat plate should be set back a little.

Is there any friction on the butts of the transfer bitts when the machine is in operation? This can be determined by putting the finger on the dial cam bracket when the transfer bitts are in action. The bitts should pass freely in the slots of the dial without any vibration.

It is of the utmost importance to have the transfer bitts lined up with the cylinder needles. The saw-tooth sinkers will not get a direct pull on the transfer bitts, putting too much strain on the loops.

If the top yarn is running through a yarn tension the thread must pull through fairly easy, otherwise cutting out will result. If backing out on the tension slackens the fabric too much, the adjustment must be obtained on the cylinder.

Running the top too tight is a cause of this trouble. The sinker cams being out of adjustment is another.

Rymi.

Editor Cotton:

I noted the question of your reader whose H-H machines are cutting holes in the top of the half-hose. We are equipped with this new type of machine, and I have had some of that trouble. If the push-in sinker cam that pushes the top down has a little notch worn in it, that will cause it to tear stitches, and also to make drop stitches. After the machines have been in operation a while these notches will come in the cam, and cause this trouble. Also, if the tension spring on that cam is too strong it will push the stitch so hard that it will cause a tear. The dial must not rub the saw-tooth sinker, or the plain sinker, either. A man might have the dial set right so that the bumpers do not rub the saw-tooth, but he can have the sinker so close to the bottom of the dial that there is not sufficient room for the fabric to pass through freely.

In the case of trouble with scattering in the double sole on the H-H machine, I suggest using a forward hook needle, instead of using three medium shank needles, make the fourth one a medium shank, forward hook, and it will grab it every time. In case a man does not have a forward hook needle, if he will just straighten out the hook on the needle the yarn is supposed to be tracked on, this will make it track perfectly, and serve just as well as the regular forward hook needle. Of course the hook should be bent just a little, and not enough so that the latch will miss it.

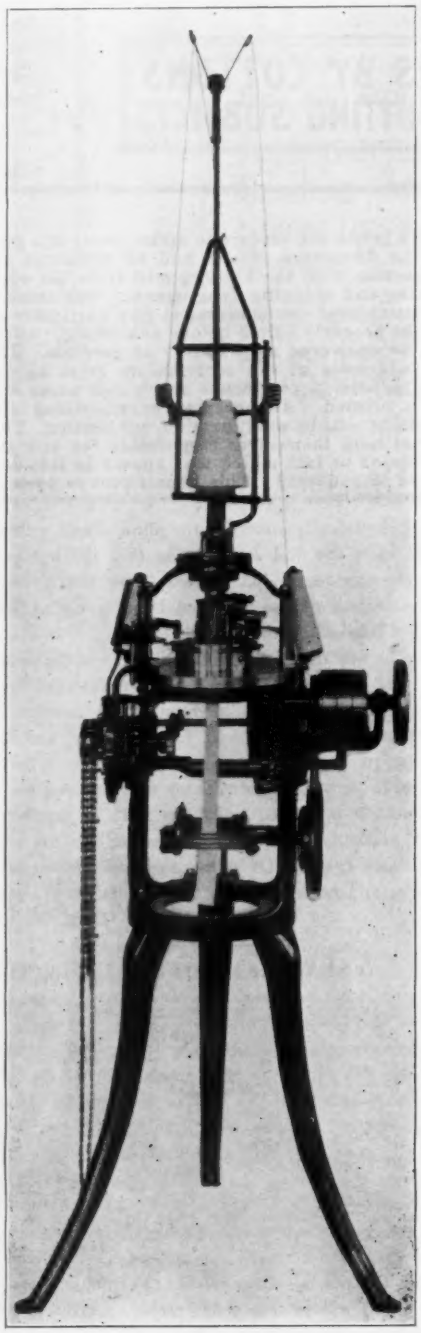
G. N. M. (N. C.)

**We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.**

## Avod Water in Art Silk Coning Oil.

Editor Cotton:

In answer to "Contributor No. 3790" regarding the artificial silk sloughing off from the top of the bobbin, will say that I have seen this happen a number of times, and in every case it has been due to moisture in the artificial silk oil. In soaking artificial silk, the art silk oil, which is mixed with kerosene, should be positively anhydrous—that is, without water. Frequently for this purpose emulsion oils are used which carry considerable water and make an emulsion in the keroesne. When the artificial silk is soaked in this oil, the moisture softens the silk, increases its elasticity, and it stretches considerably. After it gets on the cone, the moisture dries out, the silk shrinks to its former size, and this shrinking causes it to slough at the top of the cone. In some cases where it cannot slip up the cone a number of broken threads will be found due to the high tension caused by the shrinking. This is usually found on the lower part of the cone on the inside where the silk has had no chance to slip. The remedy is to see that all oils



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used on artificial silk are free from moisture and no water should be used with them. As "Contributor No. 3790" states, this trouble is more noticeable after a Sunday shutdown as the silk has had more chance to dry out on the cone. J. A. (Pa.)

## Lining Up the Double Sole on One Needle.

Editor Cotton:

In January "Knitting Kinks," "G. B. F. (Tenn.)" wanted to know if there is any way to line up a double sole on one needle on a Banner machine. Here are my suggestions for him:

Keep the needles in perfect line. Run the double-sole finger as close as possible to the needle when going in and coming out; this is regulated by moving the carrier up closer. The throat plate should be kept as close as possible to the needles without being close enough to rub. If the finger is not long enough, it is an easy matter to heat it and straighten it out to make it so. Sometimes a little spread between the two needles which the double sole yarn enters will help in some cases to line it up properly.

H. D. G. (N. C.)

Editor Cotton:

I notice a question in January "Knitting Kinks," with reference to lining up the double sole on one needle on a Banner machine. I would like to help this fellow if I can.

My plan is to keep the cam that works on the main drive shaft cut just as straight as possible so that it won't hang on the cam that works on the double sole lever, which will raise the double sole finger just as soon as it hits it, pulling the yarn out on the same needle every time. Then I do not set the finger to where it will raise too high, for this would cause trouble in getting it down on the same needle every time, because the finger has just so far to come down to the finger plate. It won't always get down in time to put the yarn on the same needle every time. Then I make certain that the spring that works on the double sole finger is just as strong as it can be made so that it will push the finger down at the proper time.

G. H. (Ga.)

## Humidifying Knitting Rooms.

Editor Cotton:

I read with interest the opinions in the November issue of Cotton with reference to using humidifying equipment in knitting rooms, and the various ideas advanced as to the advantages of this practice. I have always had an interest in this subject, and will outline to you some of the reasons I believe it should be well to use a properly selected humidity around knitting machines.

Every knitting mill man, and every practical knitter, knows that a case of yarn that has been conditioned at the spinning mill will run much better in the knitting and make a better fabric. This conditioning is done by putting the yarn in a room and "steaming" it to restore some of its lost humidity. Natural cotton carries a moisture content of around eight per cent. Then it goes through the pickers, cards, etc., where there is a certain amount of heat and where it is subjected to rather severe knocking, and humidifiers are used in the spinning mill to secure regain, but they use it only to assist the running of their work—unless the mill conditions the yarn for the knitter. Some mills do, and some mills do not.

Any man who has been around a knitting mill knows that his work will knit better on a damp day outside than on a hot dry day. In the sultry summer-time the yarn will get kinks in it and cause knots and otherwise make defective fabric, and the knitted fabric will have a fuzzy appearance. On damp days, however, these troubles are eliminated by the presence of the moisture.

That is the purpose of the humidifier—to artificially supply sufficient moisture to condition this yarn.

Of course there is the danger of getting too much moisture. I have not had an opportunity to arrive at just what amount is best, but by experiment, I believe, the correct relative humidity for local conditions could be arrived at, and then held by means of automatic regulation.

A. T. T. (Tenn.)

## Asks Remedy for Holes in the Toe and Heel.

Editor Cotton:

On Scott & Williams K machines, making ladies' mercerized work, with back-seaming attachment, we have difficulty with drop stitches which are made on the long needles just as the machine comes out of the heel and toe. Not only as it comes from the toe, but the heel as well. Men familiar with this machine know that the gap closing ring, as the machine leaves these points, changes position, and my theory is that as the recess in this ring passes the needles, it gives the latches a chance to come up closing up the needle and preventing it from taking the thread. I have tried additional tension on the needles, but get very little relief. If any reader of "Knitting Kinks" can suggest a remedy I shall appreciate it. J. F. D. (Ga.)

## Lubricating Machines on Ingrain Work.

Editor Cotton:

In response to the query of your correspondent, "G. B. (Tenn.)," relative to the lubrication of machines for ingrain knitting, I have found the following suggestion to be the most practical: On the needles mutton tallow should be used and the yarns should run over a lubricated wick that is supported by a container using stainless oil. I do not recommend but very little lubrication of the sinker head, and when this is necessary just a few drops of the stainless oil should be used.

To avoid the streak across the heel which is made by the long butt needles high, while the short butt needles are knitting the heel, I suggest that cheaper cotton yarn be used first, to work out the oil that is already in the needles before attempting to knit with the ingrain yarn.

C. M. (Tenn.)

Editor Cotton:

I note in "Knitting Kinks" that "G. B. (Tenn.)" is going to manufacture ingrain goods, and wants to know about lubricating the machines. The best way to start on this class of work is to clean the needles, sinkers and cylinder and cam cylinder thoroughly, and see that all the needles and sinkers are wiped clean and all grease cleaned out of the cams in the cylinder and sinker cap. After this is done, put

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up soft cotton and run the machine, using three or four drops of good stainless oil in the sinker top, and using the same oil sprayed on the needles by means of an atomizer. After the cotton work is cleaned up, put on the colors.

If the foregoing oiling method is carried out regularly each day the first thing in the morning, I do not think much trouble will be encountered with oil spots or streaks across the heel which are caused when the long butt needles are raised.

In oiling machines on ingrain goods not more than three or four drops of oil should be put in the sinker cap, and when spraying the needles the atomizer should not be held too close to the cylinder as only the mist is desired on the needles, and if the atomizer is too close this will allow too much oil to get on the needles, causing streaks.

The best way to oil is as suggested, doing it regularly each day and as near the same time as possible. The cause of the streaks and black marks we find is oiling one day and then skipping a day or so. This causes a dryness and it is natural that there is a certain amount of wear on the sinkers and sinker cap and cams, etc. This being the case, there is a certain amount of iron or steel dust which collects in the sinker cap and sinker top, and when not oiled for a day or so it naturally causes black streaks when the oil is put on. But if the machines are oiled every day at the same time, there is no chance for this dust of iron or steel to collect, and the machines are kept washed or cleaned out. OLD KNITTER (PA.)

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EDITOR COTTON:

I suggest that the men who want to know about lubricating knitting machines making ingrain work try using mica for this purpose. I have a supply that is regularly used, and I find it a very satisfactory lubricant. The powdered mica can be put in a small box that has a perforated top, and dusted on the needles and sinkers, or, if necessary, it can be mixed with oil as a carrier. On revolving cylinder knitting machines, however, I find it can be applied by placing some mica on the end of a forefinger and holding it against the needles and sinkers. This would not require mixing with oil, and if applied in this manner would eliminate all trouble from oil spots. G. G. (GA.)

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EDITOR COTTON:

IN reply to "G. B. (Tenn.)," with reference to lubrication of machines on ingrain knitting, the only thing I can suggest is that he use the lightest oil he can get, and keep the lint cleaned from under the sinkers, doing this at least once a week. He should use oil freely twice a day because a small amount of oil will not clean the cylinder and get out. If oil is allowed to stay in the cylinder it will become worn and turn black, and that will cause the black streak while the long butt needles are raised to knit the heel and toe. T. C. (GA.)

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EDITOR COTTON:

Replying to your reader's inquiry with reference to methods of lubricating machines on ingrain work, will say that while my experience on this work is rather limited, the best practice to my knowledge is to oil needles and sinkers weekly, changing the yarn to cotton of cheap quality and knitting until the fabric is clean. Clearing of the oil line in the gore can be hastened by an attachment (or an additional cam) to raise the needles to the level occupied by the inactive needles in heel and toe knitting, and back to stitch cam contact every course. Several of these could be made and changed from machine to machine as oiled. It should be no trouble to make the apparatus to suit any machine used.

This is applied in the straight knitting, and gives the rise and fall of all needles as on the long needles in heel and toe knitting. It is a tremendous time saver compared with working oil out through changes of drum through successive gores.

The fabric thus knitted is in a straight tube and can be readily back-wound and used over and over again for the same purpose, if desired.

The best oil for use on the needles and parts coming into contact with the stocking is lard oil, as this is a stainless oil and emulsifies very easily. Once a week should be sufficient for these parts on ingrain work, as experience will soon teach. It should not be necessary to lubricate these parts more than once a day on any class of work. It must also be borne in mind that this work should be run at a moderate speed and not the highest speed possible on the machine. All parts and bearings that do not come in contact with the fabric can be lubricated daily if desired.

A. A. M. (N. C.)

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In reply to "G. B. (Tenn.)," I have the following information to offer:

Oil spots on hosiery always have been a problem to every hosiery mill, and always will be to more or less an extent. The majority of these oil spots, however, can be overcome provided the proper oil is used, and handled to the best advantage.

On ingrain hosiery the appearance is spoiled greatly by these spots. A good grade of stainless oil is the first necessity. There are many grades on the market, the best can be found by experiment. Here are my suggestions:

Have one man do practically all the oiling. Standardize the oiling practice, and have all machines oiled alike. As a general rule, where the machine fixer oils his own machines, he splashes the sinkers and cylinders with oil under the impression that the machines will run better. This naturally results in oil spots on the work.

The practice that I have used is to oil the sinkers once each day, cylinders twice a day.

When oiling the cylinder, *oil the butts of the cylinder needles only.* Do not let the oil get near the top of the cylinder when oiling, as this will cause oil spots across the instep of the sock, due to the fact that when the long butts are being raised out of action, the needle being soaked with oil, results in the spot.

The oil should be run into the machine, only long enough for the machine to make one revolution, then taken away.

There is really more to oiling of the cylinder than one might expect, but by oiling as has been explained, I have been able to prevent a great deal of these spots.

When oiling the sinkers, some machine fixers, besides inserting oil in the oil hole provided for this purpose, squirt the oil on top of the sinkers also. This practice of oiling the tops of the sinkers does no good, only resulting in oil spots on the work.

The oil can should be held to the oil hole in the sinker

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top for two revolutions of the machine, no longer, then taken away. This should be enough lubrication for the sinkers for one day's run on this class of work.

The operators should keep the machines clean of lint and oil. I have also found it an advantage twice a day to clean the outside of the cylinder, with a cleaning rag, of the dirty oil which results from the constant running.

Rymi.

## Causes for Needle Butt Breakage.

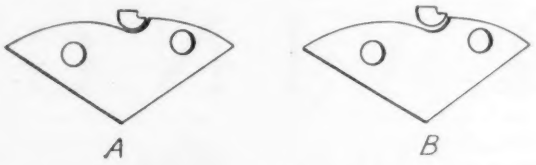
Editor Cotton:

With reference to the problem about the butts being broken off the needles on Scott & Williams K machines when the stocking is in the heel, asked by "Contributor No. 722" in "Knitting Kinks," will say I have had some experience with this.

As the machines come from the factory the springs in the up-picks on both sides of the machine are entirely too stiff. This results in too much friction on the butt of the needle on its upward throw. A weaker spring should be put in, but care must be taken that the picker works snappily. This takes the strain off the butt.

Breaking of butts on heel and toe is also caused by the up-picks not picking the needles high enough to clear the points of the back center cam. The up-pick cams control the throw of the picks. On the under side of the up-pick cams is an adjusting screw which can be set to get the proper throw. Mention must be made here to see that the picker does not get out of adjustment with the stitch cam when changing the throw of the picker.

The up-picks not fitting into the stitch cam results in the needle not getting on the picker on its upward throw,




thus resulting in the needle being drawn only half way up. The needle then hits the point of the center cam, breaking off. This is one of the main causes of breaking of needles in the heel and toe. The pickers should be set so that the needle will ride right on into the picker; in other words, the lip, so to speak, of the picker should be on a line with the top of the stitch cam and as the butt comes over it will engage in the picker, as shown at *A* in the accompanying sketch. If the lip of the picker projects above the cam, as is shown in *B*, the needle will not get on the picker, which results in its being drawn only half-way up, jamming into the point of the center cam, as stated.

The up-pick spring breaking in two will result in the picker not fitting into the stitch cam, which will draw the butts only half way up.

Too steep a slope on the up-pick cam will result in the butts breaking off. The slope must be gradual to allow the picker to ride up gradually.

If there is too much friction on the cylinder needles the strain on the pickers will be too great, breaking off the butts.

If the guard cam is not set down far enough, two needles are likely to get caught on the right picker, resulting in only one being drawn up while the other is only half drawn, jamming into the right point on the center cam. Take the guard cam out and give it a twist downward, so that it draws the needles down low enough to engage one needle at a time, when the picker is working. Take care not to get the guard tipped too low, because the needles will get caught on its point, breaking off the butts.

It may be that the needles used at the present are crystallized, which will cause them to break.

Running the machines at too fast a speed will cause this trouble. A safe speed for this type of machine is 230 revolutions per minute.

Rymi.

In answer to your correspondent who reports that his Scott & Williams machines are breaking the needle butts, I should say that either the lip or stirrup on the up-pick is worn so as to allow the needle shank to slip off, or else the lifter cam is not adjusted so as to throw the needle above the point of the center cam. I suggest he look at these points to see if he can locate his trouble.

J. L. H. (N. C.)

Editor Cotton:

I note the question of "Contributor No. 722" with reference to the Scott & Williams machine breaking needle butts with the lifters. There are several causes for this trouble. First, the wear on the bottom of the picks due to their action upon the lifter pick cams. Secondly, the possible wear, although very improbable, of the picker wearing into the lifter cam.

This can be corrected by re-grinding or smoothing the lifter cam to its original shape. More important, however, is the fact that if the bottom of the lifter has been worn they are failing to lift the needles sufficiently high to pass over the top of the center cam. When turning the machine by hand the lifter should pick the butt about 1/16 of an inch above the point of the top center cam. This amount of clearance is necessary due to the fact that when the picker is released from the butt of the needle, the needle returning back into the cylinder has a tendency to swing slightly downward, and if the clearance is not sufficient for the point of the top center cam it will spring down into the path of the point and cause breakage.

There is an adjustment under the lifter pick raising cam for adjusting the height of the picking of the needle.

N. M. (N. Y.)

## Preventing Bleeding on Sulphur Black.

Editor Cotton:

Regarding the inquiry of "D. D. W. (N. C.)" to "Knitting Kinks," beg to advise as follows:

"D. D. W. (N. C.)" makes a statement that they add the glue to keep the sulphur black off the art silk. Glue will not keep the sulphur black from the art silk, in fact, the sulphur black will go on the art silk the same as it would on the cotton if the glue were present. Glue is used when dyeing pure silk to keep the sulphur black from staining the pure silk. He also states that he boils the goods for about fifteen minutes. He should not boil the goods at all when dyeing art silk and cotton, but should keep it under the boil at all times. Otherwise, the art silk will take all the black and leave the cotton flat.

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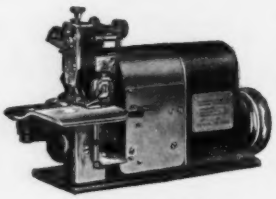

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The cause of his bleeding is probably due to the fact that he has been adding glue to the bath repeatedly and this glue remains in the bath at all times, the result is that this glue tends to saturate the bath and prevents solution of the sulphur black, and under these circumstances, it is impossible to get a black which will not wash off.

B. J. (PA.)

---

EDITOR COTTON:

In answer to "D. D. W. (N. C.)," who asked a question in the "Knitting Kinks" section of the last issue of COTTON. I would advise that with his procedure, the soap boil acts as a stripping agent. Sulphur black should be oxidized after dyeing.

The following procedure is suggested:

Dye for one hour in the usual way.

Drain the dye liquor.

Give a short cold wash.

Drain.

Give a thorough warm wash between 120-130 degrees F.

Drain.

Soften with 2 per cent green olive soap at 130 to 140 degrees F. for one-fourth hour.

I trust that this suggestion will prove helpful to "D. D. W. (N. C.)."

L. G. (N. C.)

---

EDITOR COTTON:

Replying to the query in "Knitting Kinks" from "D. D. W. (N. C.)," I am pleased to join in this discussion, with the following suggestion, which may be of some assistance. However, things that can be applied, with perfect satisfaction, in one place, cannot always be used the same in another place. Conditions certainly alter cases.

"D. D. W." states he is dyeing an artificial silk and plaited half-hose with 7 per cent sulphur black dye, 6 per cent sulphide and 6 per cent sheet glue—the latter to keep the black off of the artificial silk. The formula for the dyeing is correct, however, leaving the glue entirely out of consideration, it seems to me that the addition of 5 per cent of common salt would be beneficial in the dyebath to fasten the black.

In the soap bath, he should not boil the goods, even in a 3 per cent solution of olive oil soap, as this alone would have a tendency to strip out some color, owing to its strong alkaline solution, but in softening with any soap or softener, the temperature should never be raised over 130 degrees F., and the goods run in this bath for 15 to 20 minutes.

As "D. D. W." states, the goods are bleeding after the soap bath; it seems that this bath is the cause of the complaint, and I would suggest that he use, in softening: one per cent olive oil soap, and two per cent sulphonated castor oil, dissolved in a bucket of warm water, and used for the softening bath, as this will give the goods the desired softness and finish, and the oil being on the acid side, or neutral, will counteract the alkalinity of the soap. The bath should be run at 130 degrees F. for 15 minutes. If the sulphur black bath contains some salt, and the goods are then finished with the foregoing formula, there should be no bleeding of the sulphur black or any other color.

L. M. S. (TENN.)

---

Whenever you have a problem in knitting, submit it to this department.

## How May This Cutting Be Prevented?

EDITOR COTTON:

I would like to submit the following problem to the readers of the "Knitting Kinks" department:

In changing over our Model R I Scott & Williams machines to 300 Denier artificial silk, I have had difficulty with cutting out in the corner of the foot just before the machine transfers into the heel.

This trouble, in my opinion, is caused when the machine is making the heel. The reciprocating motion of the machine causes the saw tooth sinkers to cut into the fabric, due to the fact that the artificial silk will not stand much strain. This trouble is not in the gores of the heel or in the heel, but just above the heel in the corners.

I have my dials raised as high as possible, also have removed the wings from the cylinder tube. Our silk is not brittle, as we have this run through oil to soften it, so that it would give a little.

Any suggestions your readers might make with regard to this difficulty would be appreciated.

CONTRIBUTOR NO. 3366.

---

## Causes for Stitches Riding the Sinkers.

EDITOR COTTON:

I note that "J. K. L. (N. C.)" is having a lot of trouble in overcoming the stitches riding the sinkers on the Standard B machine. New sinkers and a new sinker head cam will stop it for a while, but often the only thing to do is to get new sinker dials.

Without going to all this expense, however, I suggest that he examine the collars which hold the cam ring in place. No doubt he will find that these have worn until there is play for the sinkers up and down. He should file the ring until it fits down good and snug—but not too tight after the nuts are on the stud. It must be understood that the highest part of the collar, or shall we say the bottom of the collar, taking it just as it is placed on, is the part to file, and it must be done evenly, or the work will be for naught. If the sinkers have too much play in them, the points of the collar, that is the high points, should be ground so that they will fit down better. Ordinarily, you know, a fixer is inclined to leave the heads loose, because if they are too tight without the collar being ground, the sinkers would be broken, but if he will grind off the high places, he can tighten up without any trouble, and this will eliminate the loose heads.

Worn sinker head cams, worn cylinder ring cams, worn yarn locks and worn yarn carriers will cause gore cuts. He should see that there is not too much play between the stitch and bottom center cams. If so this causes the needles to have side play, and also gives them a chance to jump away from the yarn carrier while on the heel and toe. Sometimes an entire new set of cams must be put in before gore cutting can be stopped. One must know how to fit each cam to get the best results.

Back corner cutting is one of the most difficult things we have ever had to contend with. Some of the foregoing causes are to blame for this also. We take it that "J. K. L." has examined the first two needle levers to see if the small springs are all right, and whether the levers are open too much. If the levers are open too much, he should

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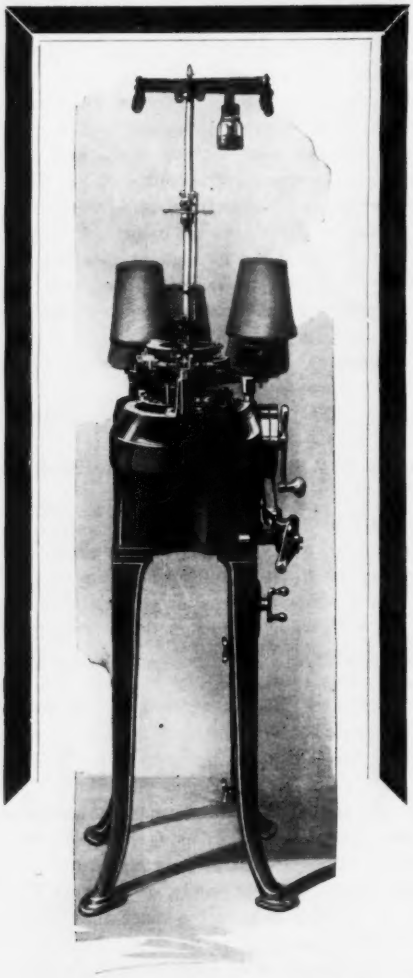

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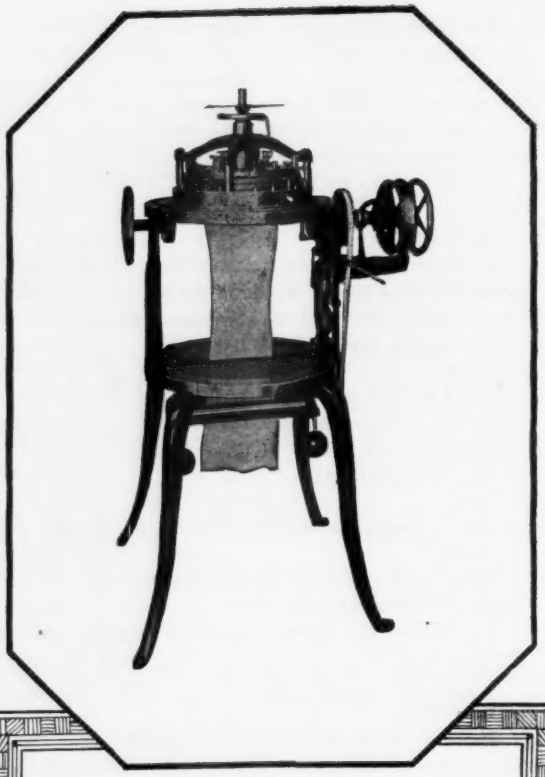

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take them to a vise and close them, leaving the needle just enough room for free play. If too tight, then open them. Levers that are too tight will cause trouble of this kind.

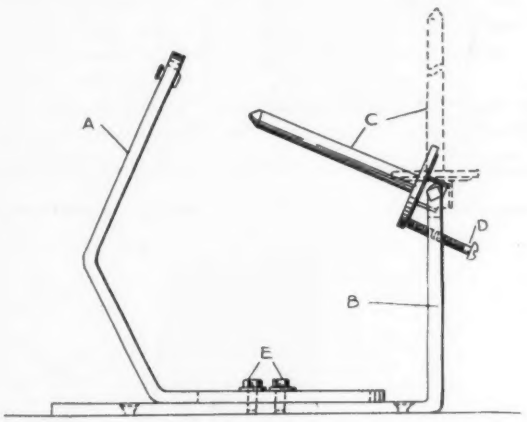
If "J. K. L." wishes further information, I know the fellows with experience on Standard machines will be glad to do what they can to help him. N. (GA.)

## An Adjustable Thread Stand.

EDITOR COTTON:

This letter is written to "Knitting Kinks" to describe a new adjustable thread stand for artificial and pure silk in which I believe the readers of this department will be interested.

Everyone who has run artificial silk knows the almost absolute necessity for ballooning the yarn in order to prevent its hanging and either breaking entirely or breaking some of the filaments, so that trouble develops later on. Everyone almost balloons this yarn by placing an eyelet vertically above the cone, but this has its disadvantages, for in removing empty bobbins and placing new ones, the eyelet must be moved to one side, and oftentimes it is not replaced directly over the center of the bobbin, which results




in the thread dragging around the empty part of the bobbin, causing irregular friction and the attendant difficulties familiar to mill men.

To overcome these difficulties arising in running artificial and pure silk, Lester J. Hill, of Lexington, N. C., has invented the thread stand shown in the accompanying illustration, a study of which will make plain to the practical mill man the operation and advantages of the device. It consists principally of two adjustable sections of strap iron, *A* and *B*, the former having an eyelet at the top which acts as a rover or ballooner. The upper end of the arm *B* is forked to provide a socket in which the bobbin carrier or spindle *C* is mounted. This bobbin holder can be swung upward as shown in the dotted line, to receive the bobbin, and then may be swung down into an inclined position. The set-screw *D*, threaded diagonally through *B*, forms an adjustable stop for engagement with the flange of the bobbin holder, to support it at any inclination desired.

By means of the set-screws *E*, the arm *A* may be moved toward or away from the bobbin holder, in order to provide for longer or shorter bobbins or cones of yarn, as desired. In order to maintain the same alignment between the bobbin or cone and the ballooning eyelet, the angle of the bobbin holder may be altered by means of the set-screw *D*.

The feature of having the bobbin horizontal, or nearly so, was designed to allow any slack thread to fall beneath the upper end of the bobbin and to insure a more perfect take-up of the thread without its becoming entangled when the machine begins to draw the thread, also eliminating its catching on knots.

The stand is patented and distributed by Sink and Hill, Lexington, N. C. BOB (GA.)

## Points on Random Dyeing.

EDITOR COTTON:

In response to the question in "Knitting Kinks," we are pleased to give what information we can regarding our experience with random dyeing for underwear.

It is my opinion that you cannot possibly get the range of randoms on the cone-dyed randoms that you can by the felt pad method when winding yarn. To get a fairly even result in fabrics made from yarn dyed in cones, it is necessary to back wind half of the cone and alternate them on the knitting machines. The reason for this is very evident when you consider the larger and smaller circumferences of cones when full and when nearly empty, and particularly when you consider the vacuum process of applying dye into the cone, as in this case, it is practically impossible to suck dye through the cones and have the same strength of color near the center that you get near the surface.

As regards yarn getting sticky and hanging together when any of the three methods are used, as indicated by your correspondent, it is my opinion that this will not happen when the standard dyes recommended by the inventors of these machines are used.

It is the practice of some mills that use the felt pad method of dyeing mottled yarns, to attach a paraffin device over which the yarn runs before it reaches the dye and they claim by using this paraffin they can make fabric free from holes, which otherwise they could not do. I have had no trouble in knitting mottled dyed yarn when using brass covered spools or spools from which the shellac has been removed and refinished and polished with oil.

CONTRIBUTOR No. 789.

## Reasons for Tangles in the Double Sole.

EDITOR COTTON:

In answer to "M. L. D.," who is having trouble with the double sole knitting up in a half-hose of artificial silk, with cotton double-sole, if, as he says, he is cutting the yarn off properly, my opinion would be that the yarn binder plate has a rough edge on it, or a rough screw, that catches the yarn, because something certainly is catching it and causing it to tangle. I. N. (N. C.)

EDITOR COTTON:

In answer to "M. L. D. (N. C.)," with reference to the double sole knotting and tearing holes on the double sole cutter—

It appears that the double sole or splicing yarn is pulling harder or dragging and pulls the fabric close in the

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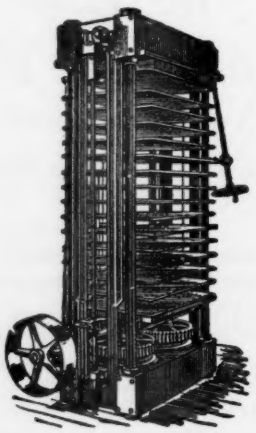

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going in and out portion. This will bring the yarn as it passes under the presser and knives to come close to the presser and should there be the least rough place on the bottom of the presser it will snag and knot the threads.

Also, if the fabric is narrow and going over the double sole cutter it stretches the fabric and draws the stocking so close or tight, it tears instead of cutting.

I suggest he examine the double sole cutter and see if the tongue that guides the threads in the double sole cutter does not draw so tight that it pulls the fabric so as to split and not cut.

First, he should get the machine knitting the fabric right, and while doing so, see that the splicing finger raises high enough each time, and takes up yarn enough to give slack, and that it raises the same distance or height each time.

Bob (Canada)

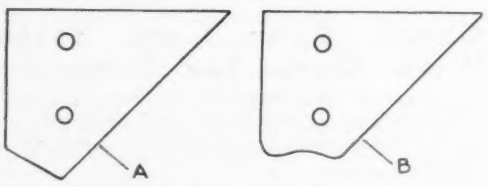
## The Pitch of Cams in Underwear Knitting.

Editor Cotton:

I read the question of your correspondent with reference to the pitch of cams in underwear knitting. Possibly I can give some information on this.

The accompanying sketches, *A* and *B*, show the cams on a revolving head machine, ground differently. (On a still-head machine, of course, you understand the sketch of the cam would be just the opposite to the one for the revolving head machine.)

I believe that on plain straight-away knitting, on the body of the fabric, the needles should be released quickly, and have only one needle under tension at a time, with a




finer pitch cam. If the cam is used as a fine pitch cam to operate one needle at a time, for plain knitting, it would be ground as shown in the sketch *A*.

In making welts on hosiery tops or welts for underwear cuffs it is necessary to have at least two cylinder needles under full tension at the same time, in order to make the welt, on ribbers for half-hose. On underwear welt machines, generally called cuffing machines, the cam shown at *B* is used, which holds six or eight needles under tension at the same time. Certainly this increases the amount of tension or strain on the yarn which is very likely to cause holes from weak yarn and poor machine adjustments, but this tension on the needles is very essential in preventing drop stitches while knitting the welt, depending on the size of the welt as to how many needles are held under tension.

Please notice in the cam *B*, that while the circle in the lower part of the cam is to release the strain, it still holds sufficient tension on the yarn to prevent drop stitches.

Furthermore, it should be remembered, the dial cap must be at the proper position to correspond with the cylinder stitch. The cylinder stitch must be just released at the time the dial stitch takes up.

I trust this will be of help.

L. S. (Tenn.)

## Lining Up on One Needle and Anti-Runbacks.

Editor Cotton:

You have published a question about lining up the double sole on one needle on a Banner machine. Possibly I can tell something about this, although my remarks apply to the Scott & Williams machines. Here is my suggestion, for use on any model of this machine:

Take the cam on the sinker cap and line up to the needle it is desired to use. I took the dividing cams off and threw them away. Of course care must be taken not to line up in the corners, as everyone knows this will result in corner holes.

In a recent issue you had a letter telling about putting an "anti-runback" in on a ribber a few courses above the loose course. If anyone who is having trouble with runbacks will try not putting so much "draw" on his cylinder needle, I think he will find he will get a better slack course, and will eliminate the runbacks without this extra course, which, of course, has its disadvantages. I know I have difficulty getting my fixers to keep this right, as they want to put plenty of "draw" on the cylinder needles because it runs so much better from their standpoint. A man ought to equalize the dial stitch and the cylinder stitch.

D. M. T. (N. C.)

## To Prevent Needle Latches Sticking.

Editor Cotton:

Replying to the letter of "D. M. T.," who complains of the latches sticking on George D. Mayo machines, especially the first thing in the morning, I would suggest that he defer the oiling of the machines until they have run about two hours, which gives the latches time to warm up and which causes them to work more freely. After a machine has stood over night, the needles are cold and the latches are tighter than they are when they get warmed up.

I would further suggest that the needles be oiled three times a day, beginning about 9 o'clock in the morning and then about three hours apart until oiled twice more that same day. This will keep the needles from getting too dry and rough in the rivet.

A great many people make the mistake of oiling the needles just one time during the day and the needles soon get warm in the rivets and then the least little thing will make them stick.

I do not know what kind of oil your correspondent is using, but the lightest oil he can use is the best for needles, because thick heavy oil that will stay on the needles very long will cause the latches to gum up and stick. This is the only remedy I can give for the trouble your correspondent outlines.

B. R. (Ga.)

Editor Cotton:

In response to the man who has trouble with the latches sticking on George D. Mayo machines after oiling. I do not know who he is, but I venture to say he is using short-latch needles, which is what causes this trouble. We use the long-latch needles, and the latch ring on the top of a George D. Mayo machine will keep the long latches from flying up. But the short latches will hug right close to the hook.

And of course this man should put just a little oil on

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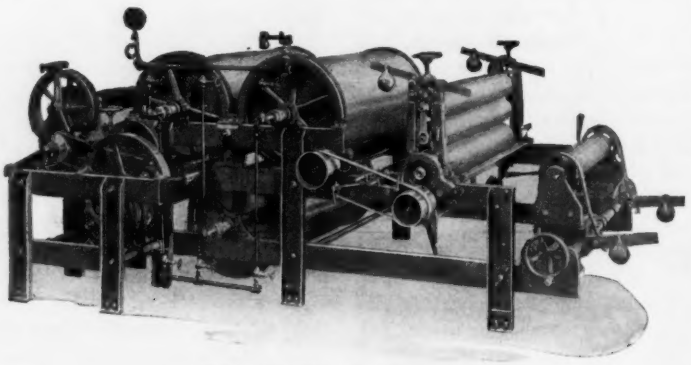

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the sinkers, and not allow any to get on the needles. They'll stick on any machine if oil gets on the needles.

Contributor No. 721.

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Replying to the inquiry of "D. M. T. (N. C.)," I wish to state that from our experience we have never been able to overcome the trouble which "D. M. T." is experiencing on the George D. Mayo transfer machines—with oil. As a matter of fact, I believe it is much better to use a slow-flowing oil on transfer work for various reasons.

In my opinion, the simplest way to eliminate this trouble of which he is complaining is to use a needle made with an especially long latch in the transfer footer. If he will go through his machines he will probably find some of the latches protrude a little above the point of the hook, while others, close up, have a perfectly smooth surface where it closes on the hook. If he should take his trouble up with his needle maker, explaining that he wanted the end of the latch to protrude over the point of the hook so when the stitch is transferred from the points it will automatically open the latch, I am very sure the needle maker could supply him with another latch.

I trust this information may be of some assistance to him and assure him that I will cheerfully go into the matter further if this does not straighten it out. Also, when he finds a remedy for his trouble I shall be mighty glad to have him point out through "Knitting Kinks" just what he did to overcome it. M. A. (N. H.)

---

## Overcoming Stitch Cam Trouble.

Editor Cotton:

In looking over "Knitting Kinks" of the January issue I notice that one of the readers wants some information on stitch cams for the underwear machine or hosiery ribber. I have had extensive experience with the latter, and if I can help him any I will be glad to do so.

I have always had success with my cams ground as "P. B." grinds his, with nearly two needles held down and the bottom of the cam flat. This gives a smooth, even fabric that you wouldn't get with a sharper point on the stitch cam. "P. B.'s" trouble may be in his dial stitch cam. I have found that if I grind the point of this cam to a point that will only hold in one dial needle that this lets off a lot of unnecessary strain on the stitch at that place and prevents a lot of undue breakage. At this point the stitch has locked and there is no chance to draw in more yarn, as is the case when the cylinder cam is making the stitch, and if too many needles are held in it will at times break the thread, especially on mercerized yarn.

Cotton and silk are not so bad. The cam with the sharp point will draw a needle in and doff the stitch and release and cause no undue strain on the thread.

Another thing that will cause excessive breakage is the position of the dial cap. This is adjusted properly by setting it so the needles come to a point coming out under the guide. This point should be set a little back of the yarn hole in the guide. If this is set too far forward it will cause the dial latches to close up too soon and cut the thread.

Other causes could be: a rough place in the eye of the guide; the fingers of the stop motion may be loose, thereby causing the thread to jerk; or a rough place on the fingers. The dogs or dogless may not be set exactly right. The needles may be a little closer on one side than the other, thus allowing the cylinder latch to strike a dial needle as it closes.

I have given several suggestions hoping that some of these will help "P. B." H. S. (Tenn.)

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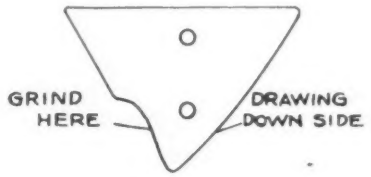
## Ribbers and Drop Stitch Tops.

Editor Cotton:

In answer to "T. W. T. (N. C.)," who asks about the clearing course on a ribber making drop-stitch work.

There are several makes of ribbers, and one of these is adapted to make drop stitch work, and it makes it right. I have a battery of them in operation. I understand there is an attachment on the market that is positive and effective.

The ordinary loose course device is not adapted to pull a long loose course and do so each time without drop stitches




when making drop stitch tops. I would suggest that he try the device mentioned. The only other way that will enable him to get the loose course a little larger and not make drop stitches is to grind the stitch cam in the manner shown in the accompanying sketch. In grinding be certain not to touch the point of the cam. Bob (Canada)

---

## Reducing Weight Without Changing Yarn Size or Hose Length.

Editor Cotton:

In answer to "P. T. E. (N. C.)," who is using a 60s/2 mercerized yarn on Scott & Williams machines and desires to reduce the weight from 21 ounces down to 18 ounces without changing the yarn or the length of the hose—there is only one way that this can be done, and that is to take out some links in the leg and foot and slacken or loosen the stitch in order to get the length. By doing this he will reduce the weight but will get a sleazy looking hose, I fear. Should he desire to retain the fabric or stitch there is only one solution for this and that is to use finer yarn and adjust the chain to suit the length. Old Knitter (Pa.)

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Editor Cotton:

I notice in "Knitting Kinks" that "P. T. E. (N. C.)" wants to make a ladies' hose, weight 21 ounces, of 60s/2 mercerized, 220-needle, to weigh 18 ounces to the dozen without changing the length or the yarn.

There is only one possible way to do this and that is by tension, and "P. T. E." will have to manipulate the tension of the machine to get it.

I would advise loosening the top and calf portion considerably, and tightening the ankle and foot tension. You appreciate the fact that reducing the weight three ounces on the dozen is not any more than the machine will vary

in a five dozen weight, or what allowance is made for variation.

I suggest he try tightening the foot and ankle first, and get the top or hem and calf looser. He will find that this is about the only solution to lighten his fabric. The greatest portion of the hose is from the top of the hem to the ankle, and there is where the weight will have to be reduced. BOB (CANADA)

## Taking the "Curl" Out of Ladies' Hose.

EDITOR COTTON:

Some months ago in "Knitting Kinks" a reader wanted to know how to eliminate the "curl" in ladies' hose to get away from waste in cutting off an inch or two before hemming.

I assume he is running on what we call "string" work, where the machine doesn't stop but goes from one stocking right on to the next one. To overcome this trouble on this sort of work, if he will run a soft combed peeler yarn, reverse twisted, as a sort of a division between the stockings, for about an inch or two, then when the girl cuts the work apart, this reverse-twisted yarn will give a counter twist to the stocking and it will not curl. A. S. R. (TENN.)

## Among the Knitting Mills.

Triumph Hosiery Mills, Inc., Philadelphia, women's seamless silk hosiery, has acquired quarters for establishing a branch plant, to be equipped with full fashioned machines.

George Bond & Co. have placed a contract for American built full fashioned hosiery machines for their plant in Sidney, Australia, where, it is expected, a heavy import duty on American hosiery will be in effect soon. It is understood the machines will be shipped within a month or two.

The Rosedale Knitting Co., Reading, Pa., women's full fashioned silk hosiery, is building a two-story addition in which it is intended to install an additional 150 full fashioned machines. The present plant comprises 100 flat machines.

Operating day and night on men's full fashioned silk half hose, the Busy Bee Hosiery Mills, Reading, Pa., has arranged for an installation of full fashioned machines for women's silk hosiery.

The Allen Hosiery Co., Inc., Philadelphia, selling to retailers, has disposed of most of their machinery and discontinued manufacturing for the retail trade. A concern by another name will comprise some of the Allen financial interests and sell to consumers direct.

Alfred M. Cohen and William H. Heselton, experienced knitters, have formed a copartnership to trade as the Ogontz Manufacturing Co., in Philadelphia, to manufacture underwear cloth of artificial silk and fine count cotton yarn, for the manufacturing trade. They also will make knitted dress goods cloth and jersey cloth.

Oakbrook Hosiery Mills, Inc., Reading, Pa., who last year added a number of full fashioned machines, have purchased a building in which additional equipment will be installed. The company has been declining orders because of a sold-up condition.

It is understood the H. C. Aberle Co., full fashioned hosiery for women, Philadelphia, will erect a building on a tract purchased recently, to be equipped with full fashioned machines.

The Classy Knitting Mills, Philadelphia, women's cotton underwear, is offering its complete ribbed underwear plant, intending, it is reported, to manufacture artificial silk underwear.

Green Bay Knitting Mills at Green Bay, Wis., has been purchased by David S. White and two associates. They will manufacture knitted outer garments and specialties.

It is reported that a hosiery mill is planned for Thomasville, N. C., by T. E. Jennings and others. A corporation has been formed and the contract for the construction let.

A new plant building is under construction at Salisbury, N. C., for the Wallace Wilson Hosiery Company. This building fronts on Steele Street for 250 feet and adjoins the main line of the Southern Railway. This company is now operating in the annex of the Vance Cotton Mill, but the new plant building will allow them the space for the necessary enlargement they wish to make. Edward Scheck is the resident manager.

Louise Knitting Mills Co., East Durham, N. C., is erecting a new brick building 50 x 140 feet to house the finishing end of their business as well as a part of the knitting equipment. The company now operates a plant at Jonesboro, N. C., and it is planned to move the finishing machinery from that plant at once and later to move the knitting machinery to the new addition and close the Jonesboro mill, so it is reported. The company manufactures cotton, mercerized and fiber silk hosiery. E. C. Stone, president and K. C. Stone, secretary and treasurer, are the active heads of the organization.

Grey Hosiery Mills, Hendersonville, N. C., are to erect an addition 50 x 130 feet to be used as a dye house and finishing plant, according to reports, and this work is to begin at once.

The reported addition to the Ashe Hosiery Mills, that was mentioned here last month, is to consist of an addition to the main building 60 x 50 feet, two stories and basement, and a separate one-story dyehouse, 73 x 40 feet. J. J. Ashe is the president and active head of the company.

Nebel Knitting Co., Charlotte, N. C., have contracted for a building 46 x 120 feet, which, when completed, will be equipped for the manufacture of silk hosiery.

Parks Hosiery Mills, Inc., Asheboro, N. C., who are erecting a two-story brick building 62 x 163 feet, expect to be able to install machinery some time this month.

It is announced that the Athens (Tenn.) Hosiery Mills are to build an addition to the present plant in order to facilitate the handling of the output. No additional knitting equipment will be added, it is stated.

Aycock Hosiery Mills, South Pittsburg, Tenn., has leased space in Huntsville, Ala., where they will install 160 knitting machines removed from the South Pittsburg plant and replace these with machines of another type in the main mill. The Huntsville plant will be known as the Aycock Hosiery Mills No. 3.

The Carter-Collier Co., Barnesville, Ga., are to install a new bleachery in connection with their knitting mill at Barnesville. Contract for machinery and material has been let and work is reported to be progressing rapidly.

# FALLS

in mills, both on stairs and on the level, are responsible for a very high percentage of fatalities and of lost time claims. One fatality in the course of a year results in a big increase in compensation insurance. The loss of trained workmen even for a day slows up production.

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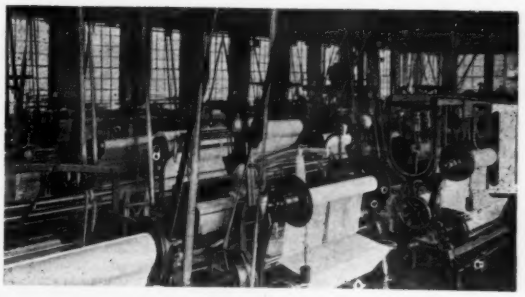

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# The Yarn Market

It is possible now to record that for the past month, as reported here, the Philadelphia cotton yarn market has shown a definite improvement. It apparently has shaken off the lethargy with which it has been cloaked, and purposes bigger and better things. Evidences of this condition presented themselves first during the latter part of February, and March arrived to find the market on an upward trend toward health and higher rates for the spinners.

Principally the improvement experienced has been the ability of dealers and spinners to elevate price rates to a level more nearly in keeping with their definition of replacement values. Most all of the yarns handled in this market evidenced much better health over the period covered in this report, as the middle of March found increased rates throughout the list.

As example of this, 20s/2 warps were quoted on March 13th at 45 cents, which was two and a half cents higher than the rate a month or so prior to that date. 26s carded yarns for hosiery showed a similar improvement, rising to a level of 46 cents on Friday, March 13th. Other representative counts were elevated similarly, with increases ranging from a half a cent on some of the harder numbers to two and three cents for the more popular.

Quite naturally the betterment of conditions in yarns resulted very largely from the increased values of raw cotton in both New York and the South. The staple during this period has been mounting steadily upward to better rates, and yarns have followed suit.

This, however, has not been the sole impetus of the activity in yarn rates. Spinners, now united and fortified from the standpoint of organization, and guided by experience in the recent past, seem to have taken a more positive stand than ever before for replacement rates. The Southern Yarn Spinners' Association, through their efforts, apparently have secured more recognition of the spinners' angle than has heretofore been the case.

Spinners were willing, it seemed, to hold yarns for prices approximateing their quotations. Some of course accepted business for immediate shipment at prices under the general run, while others were not interested in business under two months delivery.

The general effect of all this was to awaken a new interest on the part of the yarn consumer. Carded knitting yarns first came in for attention, and other lines followed. The conditions in the yarn market were aided in their conversional efforts by changed conditions in yarn using fields, where better business and more orders were reported in certain lines.

In fact it now appears that the market, after irregularities have been smoothed out and conditions equalized, is in a better fundamental condition than has been the case for some time. There is always the possibility of intemperance on the part of either side, but nothing serious is feared from excessive indulgence if caution and business sanity are exercised.

Spinners are being urged to curtail their production, and report at this writing is to the effect that the Gastonia section now has instituted a 25 per cent reduction in operations. It is argued that the spinner, through wise curtailment methods, can at once reduce the increasing price of cotton, and at the same time bring about better prices for his yarn.

Stocks in the market and at the mills, it is believed, are now practically non-existent.

Following are quotations on the Philadelphia market on March 17:

**Single Skeins**

| | | | |
|---|---|---|---|
| 4s to 8s | 39 | 10s | 40 |
| 12s | 40½ | 14s | 41½ |
| 16s | 42 | 20s | 43½ |
| 24s | 46 | 26s | 47 |
| 30s | 49 | | |

**Single Warps.**

| | | | |
|---|---|---|---|
| 8s | 40½ | 10s | 41½ |
| 12s | 42 | 14s | 42½ |
| 16s | 43½ | 20s | 44½ @45 |
| 26s | 48½ | 30s | 50 |
| 40s | 58 | | |

**Carpet and Upholstery Yarn in Skeins.**

| | |
|---|---|
| 8s and 9s 3-4 slacks | 40½ |
| 8s 3-4 hard white warp twist | 39 |
| 8s and 9s 3-4 tinged tube | 37 |
| 8s 3-4 hard twist waste | 37 |

**Two-Ply Skeins.**

| | | | |
|---|---|---|---|
| 8s | 40 | 10s | 41 |
| 12s | 41½ | 14s | 42 |
| 16s | 43 | 20s | 44½ |
| 24s | 47½ | 26s | 48 |
| 30s | 49½ | 40s | 57@58 |

**Two-Ply Warps.**

| | | | |
|---|---|---|---|
| 8s | 41 | 10s | 41½ @42 |
| 12s | 42½ | 14s | 43 |
| 16s | 44 | 20s | 45 |
| 24s | 48 | 26s | 49 |
| 30s | 50 | 40s | 59 |

**Frame Spun Carded Yarn on Cones.**

| | | | |
|---|---|---|---|
| 8s | 38½ | 10s | 40 |
| 12s | 40½ | 14s | 41 |
| 16s | 42 | 18s | 42½ |
| 20s | 43 | 22s | 43½ |
| 24s | 44½ | 26s | 45½ |
| 30s | 48 | 40s | 57 |
| 30s double carded | 50 | 30s tying-in | 47 |

**Two-Ply Combed Peeler Skeins and Warps.**

| | | | |
|---|---|---|---|
| 8s to 16s | 55 | 20s | 60 |
| 24s | 63 | 30s | 65 |
| 40s | 75 | 50s | 80 |
| 60s | 85@90 | 70s | 90@$1.00 |
| 80s | $1.10@$1.15 | | |

**Single Combed Peeler Yarn on Cones.**

| | | | |
|---|---|---|---|
| 18s | 50 | 36s | 62 |
| 24s | 53 | 38s | 63 |
| 30s | 57 | 40s | 64 |

**Mule Spun Carded Yarn on Cones.**

| | | | |
|---|---|---|---|
| 10s | 44 | 12s | 45 |
| 14s | 46 | 16s | 47 |
| 18s | 48 | 20s | 49 |
| 24s | 50 | 26s | 51 |
| 30s | 53 | 40s | 60 |

**Mule Spun Combed Peeler Yarn on Cones.**

| | | | |
|---|---|---|---|
| 10s | 52 | 12s | 53 |
| 14s | 54 | 16s | 55 |
| 18s | 56 | 20s | 57 |
| 22s | 58 | 26s | 62 |
| 28s | 63 | 30s | 64 |
| 36s | 67 | 38s | 70 |
| 40s | 72 | | |

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The Mathieson Alkali Works, Incorporated, announce on March 21st the removal of its general offices from 25 West 43rd Street to 250 Park Avenue (at 46th Street), New York City. The building at 250 Park Avenue was recently completed and occupies the block bounded by Park and Vanderbilt Avenues and 46th and 47th Streets. The new offices of the company are much larger, and provide better facilities for the efficient handling of their expanding business.

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Southern Railway System have issued their 1925 textile directory giving interesting information relative to textile plants located along their lines. The directory lists 1,015 plants operating 13,006,246 spindles, 257,445 looms, and 43,475 knitting machines located at points served by these lines. Other information of a general nature pertaining to the southern textile industry also is given.

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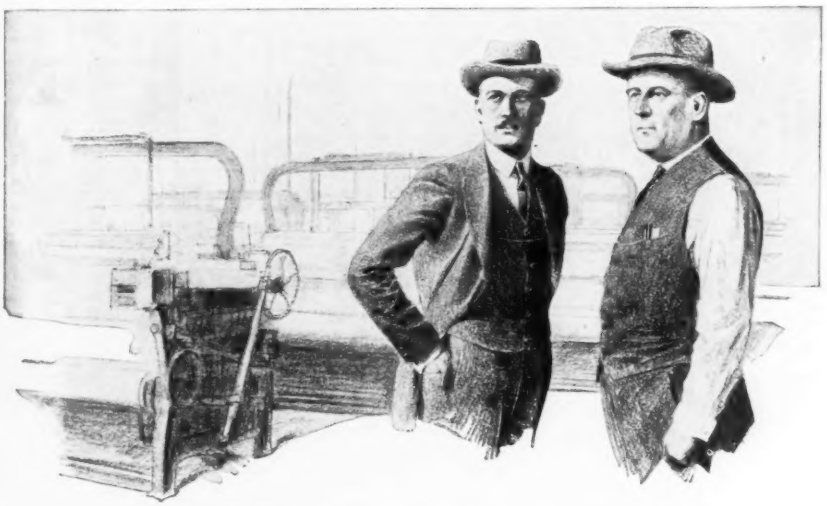

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# The Knit Goods Market

The knit goods trades present a mixed situation. Conditions among manufacturers are at variance with those in which mill agents and commission merchants are the actors. Demand for goods is reflected in continued activity in mills. There had been a piling up of late orders, which necessitated overtime operation of many plants, notably in hosiery. While these are keeping mills running, sellers in the primary market are having comparatively little new business, waiting for a second flow of orders for deliveries for the late spring and early summer months. Distributors are sticking pretty close to their policy of doing business with stocks in mills or in transit, and those who contract for seasonal goods, other than for fall and winter, are the exception.

The better gauge of the hosiery market is supplied by conditions as they exist among manufacturers, pressed as they are for deliveries, while operating to capacity, in numbers of instances. There has been much of anticipating delivery, and, as many jobbers bought too sparingly for current distribution there is considerable of reordering, formerly referred to as duplicate business. What has been lacking is new business in average lines—something to carry assurance that mills which have been running day and night may be kept in operation for at least single shift full time. With the end of March there were indications that unless buyers soon operate more freely it will be expedient to reduce work time schedules in some quarters.

Thre was noted a slowing down last month as mills reached the point of completion of orders on their books. Several were idle, while their shipping department force was kept at work into the night. All manufacturers seemed to be aiming to give no merchant opportunity to cancel an order or reject goods on the pretext of overdue shipments. There has been a letdown in cancellations, but it was not overlooked that, with the raw material markets unsettled and additional novelties coming out from day to day, chronic cancellors might readily find a pretext for repudiating a contract, in the event the market went against them ever so slightly. So with manufacturers the first thing was to make safe the orders already booked and trust to accumulating demand for new ones.

Women's full fashioned silk hosiery is sharing honors with a wide range of novelty stockings in a variety of fabric, in the matter of volume of business for immediate distribution. Silk lines have been sold further ahead, it seems, than any other staples, and some business that was offered last month was declined by two large Pennsylvania mills—one in Philadelphia; the other in Reading. The mill in Philadelphia was willing to negotiate a contract for 3,000 dozens a month for four months, if the buyer would ask for no shipment before July. The Reading establishment would not consider either of two large orders, deliveries not specified when the business was offered.

The Oakbrook Hosiery Mills, Reading, which early in the year had sold up to April, appears to be filled up with orders for the current three months, and announces additional full fashioned machines will be installed. Another full fashioned mill in Reading, the Rosedale, was unable to make its February and March deliveries in a manner satisfactory to jobbers, and also will enlarge the plant. It seemed that nearly all the full fashioned mills, North and South, and in the Central West as well, were in about the same plight as to deliveries as those referred to. In view of the flood of novelties this was regarded as somewhat amazing, and held to be evidencing a strong trend to silk hosiery of the better types. How long the jam will continue is conjectural, but there is lacking indication of any early slowing down in the full fashioned division.

Production of chiffon hosiery has been materially curtailed by not a few manufacturers who were running strong on the sheer. It was a question whether women adopting the shorter skirt would regard the sheer stocking a suitable companion piece. A late forecast was that the shortened skirt would call for not only chiffons, but for stockings knitted with silk top or, at any rate, longer than the standard length of silk boot. It came to be a widespread opinion that demand for mercerized and lisle top stockings would show some decline, to be more than offset by the broader use of the all-over silk leg. So that there is to be no less business for silk hosiery manufacturers, notwithstanding the multiplicity of novelties in mercerized and mixtures.

What gives promise of a fair measure of popularity is the knee length silk stocking for women, originally brought out as seamless, but now coming along in full fashioned. The knee length stocking was intended as a summer resort special, with no thought on the part of its originator that it would last into winter. It was widely advertised to jobbers and retailers and caught the trade, with the result some of the leading jobbers have placed substantial orders for spot and nearby deliveries. It is knitted so tight at the narrow, striped hem that it is self-supporting, but some women prefer to wear, as an ornament rather than as a necessity, some fancy design of garter finished at the side with a bow or some other arrangement of ribbon.

Neither the knee length stocking nor many of the fetching novelties have been much seen on the street in eastern cities, but it is stated that in the Middle and Far West the fads are being accorded a reception that augurs for their popularity generally, and the prediction is heard in quarters where future style can be pretty well forecast, that the three-quarter length stockings for women will be in as strong favor as the seven-eighth for misses, and have as long an existence as a fad. However that may be, it would not be likely to pass out if fashion decreed that longer skirts shall be worn. Such an ediet might help it. An argument in its favor is the common practice, with many women, of wearing the stocking rolled. If there is warrent for the rolled top, it is contended, there is more justification for the three-quarter length that does not have to be rolled for leaving a distinct line of demarcation between the upper and nether things worn.

For the woman who prefers the full length stocking, but might hesitate to wear it with mercerized or lisle top under the abbreviated garment still masquerading as a skirt, a Philadelphia manufacturer has introduced full fashioned hose with a top of natural and artificial silk in combination, thus carrying the luster of silk to the upper extremity. The top is knitted on latch needle machines, opened at the back and bar-topped on to the natural silk leg. While this

method of construction adds one more operation, there is a corresponding lessening of cost, in the more speedy knitting of the top and increasing the leg production on the flat machines. Some union knitters put in a claim for the same wage per dozen as for the full length full fashioned leg, but it is understood this was not allowed.

While there is sufficient demand for hosiery in plain, light colors to keep both spring and latch needle equipment well employed, in a general way, it is believed that the popularity of pattern stockings is affecting adversely the market for spring needle goods, which also seem likely to be feeling a sharper competition with full fashioned, since by reducing the number of strands to eight or nine, price has been brought down to about what was the popular figure for the spring needle. Recently a Philadelphia manufacturer using Pigeon machines reduced his price to a level that enables retailers to put the spring needle stocking over the counter at a dollar a pair. But not many mills would be willing to sell on so close a margin as that on which this one was working, and a more nearly adequate price at the factory would call for at least $1.25 in the retail store, a price within 25 cents of what considerable full fashioned hosiery in medium weight is sold at.

Women's latch needle silk hosiery in the better grades, to sell at a dollar a pair, appears to be in a very strong position. Several mills specializing in such a stocking are running full and sold ahead. One manufacturer of latch needle hosiery says needle makers have so improved their product that he is to turn off a better stocking, at no greater cost. It is his opinion that with the type of needle he is using it is possible to so produce a circular knit stocking that it might confuse the average buyer assumed to be able to differentiate between the spring and latch needle product.

It is the conviction of some primary market observers that there is lessened use of natural and artificial silk in combination as one outcome of the craze for novelties; that between popular pattern stockings in mercerized and in all-artificial and the higher priced in full fashioned silk, there is little to be gained by a mixture of the two fibers. It appears most of the spring needle hosiery is in plain colors, and that this is one type of stocking in which it is expedient to combine tram and artificial silk. A manufacturer is doing this effectually with a line of hosiery in printed patterns. He could not exact a profit on his silk product, so twists fiber and tram and gets the equivalent of an eight strand. He turns it over to a hosiery printer, in the city, and the printer does the rest; and the mill, according to an executive, is running full tilt, selling the output and having a substantial margin of profit.

After a somewhat protracted lull during the spurt in natural silk hosiery, women's fine gauge artificial silk goods are coming strong to the front. It appears that numbers of mills curtailed production or made up goods only on order for nearby deliveries while there was doubt as to what price changes would be made by the producers of rayon. Now that the matter of price is history, these same manufacturers can go ahead with a greater degree of confidence. Meanwhile, stocks among dealers dwindled, and inquiries are coming through in a manner indicating considerable interest, with some fair size orders being placed for April and May.

Some of the smaller mills, which do not have contracts with the producers of artificial silk yarn and therefore must depend on second hands for supplies, complain they have difficulty in getting it promptly, and at times must pay what they regard a fancy premium for immediate deliveries. But they are not alone in this respect, as there are manufacturers who contracted and to whom the producing companies are allotting shipments. So there is the possibility artificial silk hosiery may not be turned off in sufficient volume to meet the jobber hand-to-mouth demand. There are reports of mild advances by a few manufacturers, and unless they get yarn more freely, mills will be in position to exact increases.

The artificial silk hosiery market seems to have been bolstered by increases in exports, amounting in January to 130,982 dozen pairs, which was about 60,000 more than the monthly average last year and compares with 78,738 dozens in December. But there enters the question of the tariff which it is proposed shall be put on American hosiery imported into Australia and possibly other countries under the British flag. Of the total exports last year, England, Australia and Canada took 45 per cent, in comparison with 35 per cent in 1923.

It is not denied that an import duty on American hosiery might have a somewhat disastrous effect on at least one division of the hosiery industry. Probably silk, artificial and cotton hosiery would suffer, as complaint is made in the countries where tariff is being advocated that "hosiery from the United States is being dumped" there. In this connection it may be significant that one very important concern in Australia has contracted for American built knitting machines, a large shipment of which is to go out very soon.

Mercerized hosiery in fancy stitch for women is in brisk demand, but there continues restricted call for the plain types and prices rule low. There is apparently no letdown in interest in what is described as the pineapple or cross-rib stitch, probably leading in popularity, for women's and misses'. For the next season, several mills are planning to show infants' socks in this stitch. Women's popular price hosiery of this construction is scarce. It is felt in the trade that the pineapple is good for at least another season or two and that it may take rank along with the plain and derby ribs.

At the moment there is some inquiry for the alligator, or tuck stitch stocking in mercerized, for women. With the tuck stitch knitted around the leg only, the stocking is, in a way, a semi-duplication of the pineapple, with the vertical rib effect omitted. A southern mill several weeks ago advanced its price 15 cents a dozen for the alligator stitch stocking, being well sold ahead at the time and orders accumulating. With certain improvements that are contemplated it seems likely the pineapple stitch hosiery may have a bit of breezy competition.

Some of the old-time manufacturers of plain silk hosiery approach the novelty proposition with much timidity, and numbers declare they will continue making silk staples exclusively, taking the position they always will be welcome, while most of the fancies will drop out. One important mill in Reading, making both full fashioned and seamless goods, is reported to have taken orders, on first showing, for 60,000 dozens of circular knitted silk stockings with an outstanding horizontal stripe and vertical shadow stripes. This is a somewhat subdued sports line, bordering

so closely on the chaste that it is certain to make a strong appeal to an important element of the consuming public. It is designed to retail at $1.50 a pair.

The wider range of novelties is seen in half hose. Striped and pattern socks to sell at 50 cents to a dollar a pair are in exceptionally strong demand for spring and summer and many orders that are offered cannot be accepted for the deliveries specified, although mills are working to capacity overtime. While few manufacturers are making up novelty half hose for stock, it is a foregone conclusion there will be accumulations of some of the less fetching types, to be sacrificed later. Merchants do not buy heavily, they too being skeptical of pattern hosiery as a lasting proposition. But to date there is an outlet for almost anything in the novelty line, provided it gets the imprimus of the primary market interests. An upstate Pennsylvania mill brought out an innovation in stripes, but the selling agent turned it down as lacking life and priced too high as a half dollar retailer and not adapted to a higher price range. One of the larger concerns selling to consumers direct, through house-to-house canvassers, is specializing in striped half hose, while carrying a dollar line of seamless silk staples.

The door-to-door specialty salesmen are building up as large a business in half hose as had been established in women's silk, and some mills which are going over the heads of jobbers and retailers and are supplying direct sellers seem to be kept steadily employed. A few distribute through this channel as well as using jobbers and retailers for an outlet, and these are among the very busy establishments. A Philadelphia manufacturer quite recently arranged for selling its entire output to a direct seller. One in Reading is supplying canvassers, besides doing some business with established retailers.

While numbers of jobber mills making men's and women's novelties are being pushed for deliveries, those distributing through retailers direct and concerns that buy for the door-to-door trade are, as a class, the better situated in the matter of steady volume of business. The Cadet Knitting Co., Philadelphia, is known to have declined orders amounting to more than $30,000 since the first of the year, simply because it could take no new accounts. The run is, mainly, on the company's patented stocking for women. It has had the benefit of considerable effective advertising as a result of having instituted suit against the H. C. Aberle Co. and Julius Kayser Co. for alleged infringement. Both defendants deny the allegation, contending the form of construction assumed to be covered by patent was not patentable. The Miller Hosiery Co., Reading, recently found it necessary to keep the plant running until 10 o'clock nights. The company sells to retailers.

The largest direct-to-retailer mill making half hose exclusively is equipping a considerable part of the plant for making novelty socks, to be put on the market in the Fall. An even larger mill, selling to jobbers, also is attaching novelty devices to many of the circular machines devoted to women's silk hosiery. Little is heard of expansion among mills adhering to staples other than silk. On the other hand, there are well founded reports of a slowing down, and it was believed that not a few working overtime will be fortunate if during a part of the summer they have enough business to employ them half time.

It appears there has been excess production of plain mercerized hosiery in men's, women's and children's lines, judging from low prices that occasionally are quoted. There was offered last month 176 needle full mercerized half hose, with single sole, at $1.35 a dozen to jobbers, comparing with $1.55 for 220 needle double sole mercerized with combed top, sold from stock.

What was intended to be a novelty sock for men is offered to jobbers at a dollar a dozen. The stocking is of carded yarn, of course, knitted on 144 needle machines, and has the sewed toe. It carries a clumsy attempt at printed clocking, which, it is doubted, would be visible after the first laundering. Another extreme is a women's carded stocking made on 84 needle machines, conforming in coarseness to workmen's socks. The dyeing is on the scrambled order, and probably no two stockings would show the same color distribution. It is intended for hiking and rough outdoor life, which may explain why a New York retail shop was getting $1.50 a pair. The stocking cost this shop $11.50 a dozen.

Juvenile hosiery, of some strong lines, was oversold. Jobbers bought late and conservatively. Deliveries will be late, in many instances, and the jam among a few manufacturers seems likely to continue for some time, by reason of a large reorder business. This is true of children's fancy top seven-eighth lengths and infants' socks. A Philadelphia sock manufacturer has, since the first of the year, declined as much business as would constitute an entire season's run for some of the smaller mills, and last month was accepting no orders calling for delivery before July. This mill several months ago installed additional equipment. Conditions with this establishment are not typical of those prevailing generally, however. It was fortunate in bringing out new fetching patterns in mercerized and artificial silk.

Of the hosiery market generally, it may be said: Mills are busy with the completion of old orders and repeats, but it is difficult to get new business in worthwhile volume, except for spot novelties. The situation in this one respect is reflected in the average buyer inquiry, "What have you got in novelties for at once shipment?"

### Underwear.

Trading in men's and women's plain cotton underwear seems to be on the between-seasons order. Barring those comparatively few mills whose lines are in demand for some distinctive feature, manufacturers of winter weights have not been deluged with orders. Jobbers, it is true, are operating with less hesitancy than last year, for one reason because prices are lower and cotton is ruling firm. But there has not been that volume contracting that was looked for. Some little business is passing right along; but not enough to give to the market the appearance of briskness that ought to be witnessed, in view of the cautious initial buying. There is no intimation that jobbers expect any reduction in prices, but several have said, "We will be able to buy as advantageously in August as in the spring."

Some few jobbing houses had not, last month, placed their initial orders for winter weights. While some, who did, have increased the quantities, it cannot be said there has been any duplicate business. The southern group of mills which opened their lines well in advance of mills in the North and have sold rather freely for deliveries as late as June, have had inquiries that seem to indicate jobbers have heard from retailers and already see a need for addi-

tional goods. So, while the market is quiet and has been for some weeks, there is an encouraging outlook for late business.

A very large majority of the retailers will take in no winter underwear until after the end of summer, and not many have gone beyond the placing of open orders. Their specifications, jobbers believe, will be filed very late, except in the Northwest, where fall business always has an early beginning. Jobbers look for the usual retailer demand, and it is a common prediction mill sales this year will run ahead of those in 1924. But thus far it has been the policy of the conservative jobbing house to make no commitments for underwear that can as well be deferred. Jobbers are not putting into stock very much that cannot be counted on as certain to be moved to retailers by September. Whether mills will accumulate goods or pursue the jobber's waiting policy remains to be determined.

A well known northern manufacturer is strongly of the opinion that it would be the part of wisdom to not push sales for nearby deliveries simply for keeping plants operating at capacity; that more is to be gained by slowing down so long as buyers show little or no interest, and profit by the activity that must develop when jobbers see a real need for goods and find, perhaps, that mill stocks are depleted. By curtailing production now and accepting no orders for deliveries before July, it is contended, manufacturers would be in a better position in the third quarter of the year. Unless they put goods in stock, it is held, few would be justified in full time operation now, and to maintain this stage it might be necessary to engage competitive selling, with the result much of the winter requirements would be sold down low and mills left with a slack situation later.

To last month the season for light weight knitted underwear was disappointing. Repeat orders were coming through steadily, but many of these were simply for filling in, and case lots and less were common. That jobbers were buying so conservatively for additions to their stocks was taken to indicate that retailers had been operating even more cautiously than last year, when conditions were bad enough. Jobbers themselves predict a last hour business for both mill and distributor. They say they find dealers, except in the West, loath to put goods in stock in advance of the call for them, and that as they have gotten through fairly well in the past by having the manufacturer and jobber carry stock for them, they will not be likely to buy ahead of a few weeks requirements.

From all reports, it appears that the better types of men's ribbed underwear is in the better call, while substandard lines and bal briggans generally are lagging. This may be due to a strong belief that nainsook athletic suits are gaining ground at the expense of the knitted. The use of artificial silk for striping has given to the cut-and-sewed a fetchiness that may be expected to score heavily, if it is not already doing so. But manufacturers of nainsooks also report dealers buying ultra-cautiously, so that it is not altogether the type of garment that is the factor in the slowness of the market. More than anything, probably, is the disappointment over the failure of the boom, heralded last year for the current season, to fully materialize.

The falling off in business in women's cotton underwear is readily accounted for, in the swing to silk and artificial silk. Garments of the lustrous gauzy fabric are a prime seller with the house-to-house canvassers. Comparatively little business in this class of goods passes through jobbers, some of whom say they cannot handle it profitably; that it is something that better can be sold direct to retailers. Clift & Goodrich, mill agents, New York, however, have sold considerable of the artificial silk stuff to jobbers. One of their lines is made by Harcher & Annable, who recently engaged in business as manufacturers in Philadelphia. They sampled with a number of lines brought out in December and concentrated on two that seemed most promising. They have found it necessary to add more equipment. Another concern, the Ogontz Manufacturing Co., established in Philadelphia this year, is making artificial silk cloth and selling it to underwear manufacturers.

As with nainsook underwear, a person with small capital and a loft room big enough to house a few sewing machines can buy cloth and engage as a manufacturer. Hundreds have sprung up and more are coming. They operate under a low overhead and at the start are content with a margin of profit equivalent to a knitter's wage. They are a thorn in the side of the big manufacturer with large capital investment and a fully equipped mill, but they are popularizing types of underwear that cut into the sales of the knitted.

But for golf and a few other outdoor sports, it appears, trading in sweaters would be at a very low stage, and it cannot be said that there is any overtaxing of mills, even at that. Manufacturers of golf sweaters who also knit stockings, scarfs and caps to match, are having a fairly good run of orders, all for at once, and there is some interest in the cricket designs and a few other novelties for spring and summer.

Manufacturers in position to offer attractive prices and terms are able to get some business in staples for fall and winter, but the bulk of the orders will be placed late. Bathing suits are in a perhaps better situation than sweaters, but mills are waiting for more cheering reports from jobbers and retailers than those which have been reaching them.

Manufacturers using worsted yarns are in a dilemma. Refusing to buy after spinners had advanced their prices on higher wool, they were left with short supplies, and in March, with yarn prices slipping on the weakness in the British wool markets, They would take in some yarn at the lower prices if they were getting a fair response from the knitted outerwear distributing trade. As a matter of fact, it is realized the situation would be a healthier one for them if prices remain where they are, as orders invariably seem dangerous in a period of decline in the raw material markets.

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Shade cards on Xylene Milling Orange R are being mailed to the trade by Sandoz Chemical Works, Inc. The universal fastness of this shade, it is stated, meets the particular requirements of wool, silk, gloria and half wool and half silk fabrics, the color being likewise suitable for effect threads, for cotton and viscose threads are left white.

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A new sales division, to be known as Southern Lamp Division, National Lamp Works of General Electric Co., has been opened in Atlanta, Ga., along with similar new divisions at Kansas City and Minneapolis, better to serve the rapidly growing lamp territories, it is announced.